ision of Health Care Finance and Policy

Hospital Observation Stays in Massachusetts

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A review of newly collected
Outpatient Observation Stay Data
from the Division of Health Care Finance and Policy

Argeo Paul Cellucci, Governor
Commonwealth of Massachusetts

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Executive Office of Health and Human Services

Hospital Observation Stays in Massachusetts

1998 First and Second Quarter Data

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Hospital Observation Stays in Massachusetts

A Word About the Division

The Division of Health Care Finance and Policy collects, analyzes and disseminates information with the goal of improving the quality, efficiency and effectiveness of the health care delivery system in Massachusetts. In addition, the Division administers the Uncompensated Care Pool, a fund that reimburses Massachusetts acute care hospitals and community health centers for services provided to uninsured and underinsured individuals.

Satisfying the Need for Health Care Information

The effectiveness of the health care system depends in part upon the availability of applicable information. In order for this system to function properly, purchasers must have accurate and useful information about quality, pricing, supply and available alternatives. Providers need information on the productivity and efficiency of their business operations to develop strategies to improve the effectiveness of the services they deliver. State policy makers need to be advised of the present health care environment, as they consider where policy investigation or action may be appropriate.

As part of its health care information program, the Division of Health Care Finance and Policy publishes reports to meet this need for information. These reports fo-

Mission

The Division's mission is to contribute to the development of policies that improve the delivery and financing of health care in Massachusetts by:

- collecting and analyzing data from throughout the health care delivery system;
- disseminating accurate information and analysis on a timely basis;
- facilitating the use of information among health care purchasers, providers, consumers and policy makers; and
- monitoring free care in the Commonwealth through thoughtful administration of the Uncompensated Care Pool.

cus on various health care policy and market issues.

Organizational Structure

The Division of Health Care Finance and Policy is an agency within the Executive Office of Health and Human Services (EOHHS). The Commissioner is appointed by the Secretary of EOHHS.

The organizational structure follows:

Health Systems Measurement and Improvement Group

The Health Systems Measurement and Improvement Group works to accelerate efforts to improve the delivery of primary care services in Massachusetts. Toward this end, the Group provides research and demonstration resources to other state agencies, facilitates and supports the development of statewide measurement systems for quality and efficiency in collaboration with hospitals and health plans, and strives to meet the information needs of the administration and legislature regarding the changing health care system. In addition, the Health Systems Measurement and Improvement Group acts as the central source of health care information for the Division of Health Care Finance and Policy.

Health Data Policy Group

The Health Data Policy Group is charged with having a vision for the management, development and potential use of Division of Health Care Finance and Policy data by researching and evaluating health data management and policy issues.

The group also is responsible for identifying and developing confidentiality and privacy protocols, data base quality improvement, customer driven data products and consistent data policies. The goal of this group is to anticipate future health care information needs and recommend product development that is accurate, useful, realistic and timely.

Pricing Policy and Financial Analysis Group

The Pricing Policy and Financial Analysis Group develops health care pricing policies, methods and rates that support the procurement of high quality services for public beneficiaries in the most cost-effective manner possible. This group also provides information, analysis and recommendations to policy makers to support their health care financing decisions, and performs specialized analyses of innovative health care financing and purchasing methods.

Audit, Compliance and Evaluation Group

The Audit Compliance and Evaluation (ACE) Group examines financial data reported to the Division of Health Care Finance and Policy. The ACE Group performs audit, review, screening and quality control functions that provide the building blocks for the Division's work in developing pricing policies and measurement tools to improve the health care system in Massachusetts.

DHCFP support groups include :

Administration

The Office of the Executive Secretary oversees the agency's budget, regulatory process and personnel.

Information Technology Group

The Information Technology Group is responsible for managing the Division's computer network and data bases.

Office of the General Counsel

The Office of the General Counsel litigates administrative appeals filed by providers, analyzes proposed legislation relative to

the health care delivery system and provides legal advice to the Commissioner and staff concerning the development and application of regulations, policy positions and pricing information.

Office of Communications

The Office of Communications produces the Division's publications and web site, and serves as the point of contact for inquiries from outside parties.

Introduction

The transition of hospital patient care to the outpatient observation setting has increased over the last several years. In the past, patients with certain illnesses or injuries were automatically admitted for inpatient hospital care. Today, with advances in technology, progressive medical and surgical treatments, and the availability of home services, along with an increased emphasis on managed care, many patients are now seen in an outpatient observation setting. Patients are observed, and treated, if necessary, to determine if they can be safely discharged.

The rationale behind the transition of patient care to the outpatient observation setting was that certain types of less complex diagnoses and treatments could be handled more efficiently and cost-effectively in an outpatient setting, rather than in an inpatient setting which was thought to necessitate additional resources. As a result, expectations of efficient treatment and cost-savings, as well as payers' clinical and reimbursement criteria, have assisted in molding the care one sees today in the outpatient observation setting.

However, despite some commonalities, hospitals and payers may differ in their definition of observation services and their procedures for who should receive them. Many hospitals are directed by payers' clinical criteria, as well as length-of-stay guidelines, in determining who should be an observation patient.

The Division of Health Care Finance and Policy's Outpatient Observation Database includes patients who receive observation services adhering to the following general definition:

Observation services are those furnished on a hospital's premises which are necessary to further evaluate the patient's condition and provide treatment to determine the need for possible admission to the hospital. These services include the use of a bed and periodic monitoring by a hospital's physician, nursing and other staff.

As growth in the use of observation services continues, information necessary to understand and evaluate this health care shift becomes essential. Given the growing importance of this multi-faceted, yet little studied, population, providers and policy-makers have many questions concerning observation stays in Massachusetts. In the past, however, providers and policy-makers have had little information on which to base an assessment of the characteristics and impact of this trend.

This report, *Hospital Observation Stays in Massachusetts*, provides information based on the Division's newly collected Outpatient Observation Database. The purpose of this report is to begin a baseline analysis of the outpatient observation population. The Division's objective is to provide feedback to the hospitals reporting the data and to develop a more comprehensive understanding of the case mix of observation stay patients.

Hospitals began reporting outpatient observation stay data to the Division for the quarter beginning July 1, 1997. This first

quarter of data was considered a transition quarter for hospitals, since hospitals had many technical reporting issues to resolve during this period. Thus, this analysis focuses on the first two quarters of the 1998 reporting year (October 1, 1997 - March 31, 1998) and includes data submitted to the Division as of December 21, 1998.

The Division's analysis is based on "work-in-process" outpatient observation stay data. The Division is still in the process of receiving outpatient observation stay data from hospitals. "Work-in-process" means that the data the Division receives may change, as hospitals with failed data continue to fix technical problems and resubmit their data. Thus, this analysis is preliminary and the results may change as new data and revised data are submitted to the Division. Accordingly, the data content and quality will continue to improve as new submissions are received.

This report provides an overview of observation stays at acute care hospitals in Massachusetts. Specifically, this report will provide some initial answers to questions such as the volume of care, the cost of care, the types of patients being served, how these patients compare to the inpatient population, who pays for care, and an indication of how large a component observation services are for hospitals. It also will highlight some areas for data improvement.

The first section of the report, *Observation Data Overview*, presents a baseline analysis of the observation data. *Highlights for Data Improvement* provides a detailed review of areas highlighted for improvement in the reported data. The primary purpose of this second section is to focus hospital attention on these areas and to facilitate improved data reporting.

The Division of Health Care Finance and Policy hopes that this information will also assist hospitals and others to understand the growing service area of outpatient observation stays and their impact on Massachusetts hospitals and patients.

Observation Data Overview

The Division's review of the outpatient observation data included 73,662 patient stays from 80 hospitals submitting outpatient observation data to the Division covering the six month reporting period of October 1, 1997 to March 31, 1998. This amounts to approximately 37,000 patient stays per quarter as seen in Figure 1, Total Patient Stays By Quarter (page 4).

Using the first six months of data as a benchmark, observation stays reported to the Division may approach an estimated figure of 150,000 stays for the full year. Significantly, given its growing importance, observation stays in Massachusetts acute hospitals already amount to almost 20% of the volume of discharges seen in the inpatient case mix database.

Approximately 80 hospitals, out of 83 hospitals that are expected to report, have filed observation data to date and are included in this analysis. Although observation data are submitted primarily by acute hospitals, there is one non-acute hospital that has submitted observation data for this analysis: Caritas Southwood. As of the end date for this analysis, a few outstanding hospitals were still working out technical issues in preparation for submission. See Table 1, (page 36) for total observation stays by hospital, and *Appendices A and B* for a listing of hospitals and their reporting status.

Statewide Patient Gender Breakout

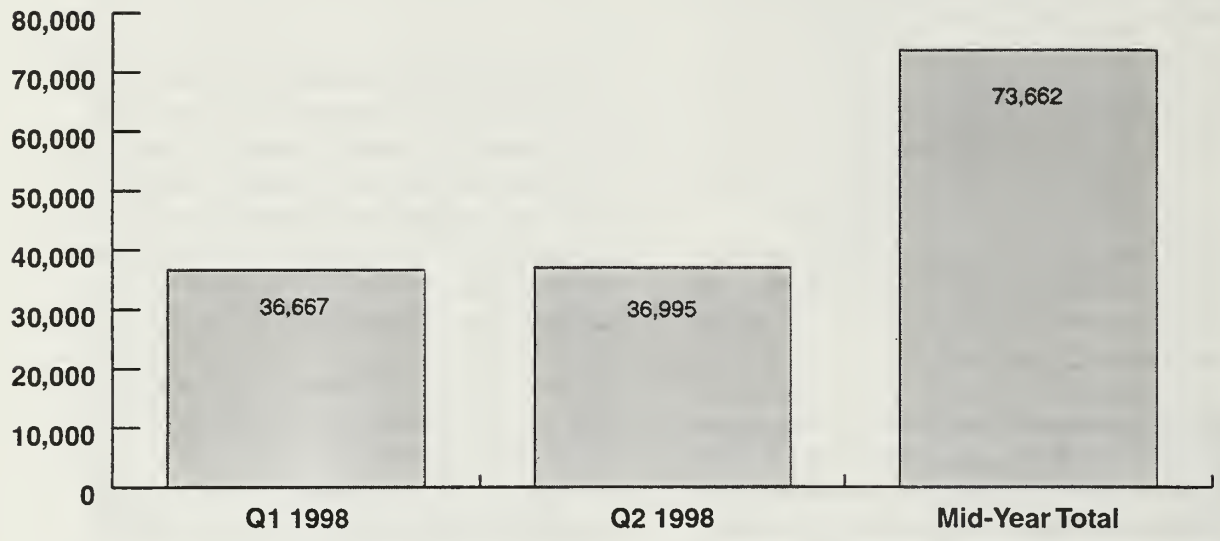
In Figure 2, Gender Comparison by Percent of Inpatient versus Observation (page 4), the majority of outpatient observation stays statewide are female. The statewide gender breakout for female and male is 58% and 41% respectively. These percents are consistent with the inpatient case mix data gender split of 58% female and 41% male for the same reporting period. Gender breakout may vary by hospital per each hospital's demographic base and clinical service mix. For instance, hospitals that offer maternity

Initial Findings

- Total observation stays are nearly 74,000.
- The majority of outpatient observation patients are female.
- The majority of outpatient observation patients are white followed by unknown, black and hispanic.
- The average age is about 44 years.
- The average stay is about 21 hours.
- The median and average charges are approximately $2,400 and $3,200 respectively.
- Most common conditions reported for outpatient observation visits are cardiac-related followed by maternity-related conditions.
- HMO, Medicare, and Medicaid are the three top Payer Types.

Fig. 1

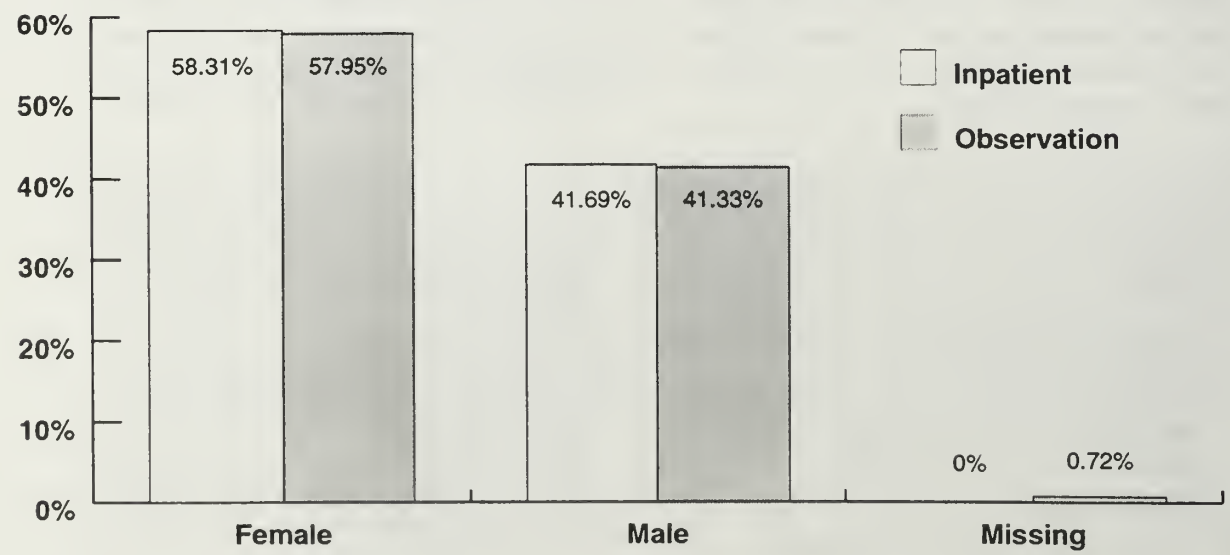
Total Patient Stays by Quarter



Source: DHCFP observation data for 80 of 83 hospitals reporting to the Division of Health Care Finance and Policy.

Fig. 2

Gender Comparison by Percent of Inpatient versus Observation



Sources: DHCFP case mix and observation data for 1998, quarters 1 and 2.

services would tend to draw more female stays than hospitals without these services.

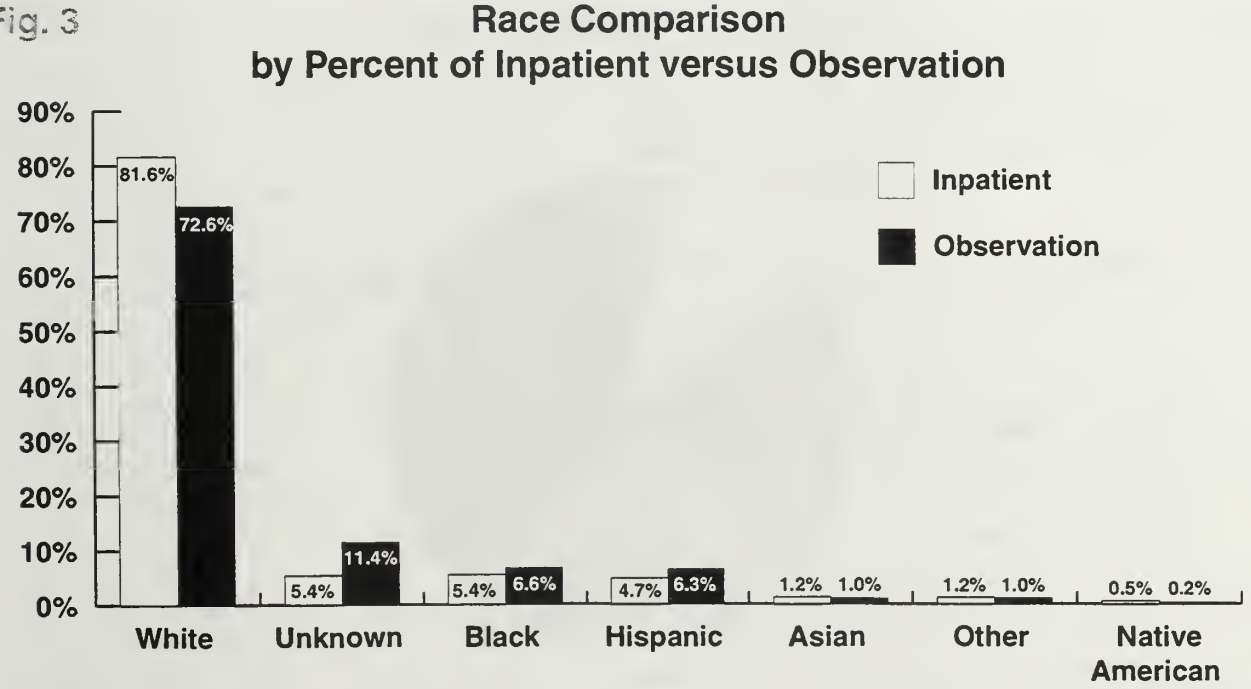
Valid codes were used in nearly all cases in the reporting of patient gender, perhaps due to the more apparent nature of this demographic variable. Slightly less than 1% of the stays were reported with missing codes. The majority of these missing values were related primarily to a limited number of problematic submissions.

Statewide Race Breakout

The majority (approximately 73%) of Massachusetts hospital outpatient observation stay patients are white. Percentage breakouts for all race categories are shown in Figure 3, Race Comparison by Percent of Inpatient versus Observation (below). Of further note is the relatively high percent of observation stays reported in the "Unknown" category. The Unknown category for outpatient observation was 11%, whereas the percent reported for the inpatient case mix data was only 5%. The 73% reported as White in the outpatient observation data compares to a figure of approximately 82% for whites in the inpatient case mix data. Thus, the 73% in the Outpatient Observation Database is most likely an under-represented figure due to a higher reporting of discharges as Unknown among observation data. Likewise, some of the differences seen in the Black and the Hispanic categories may be affected by the higher reporting of Unknown for observation stays.

Since the Unknown code is a valid code designed to be used in cases where the patient's race is either unknown or unavailable, some limited use of this code may be appropriate. Upon review, however, it was discovered that contributing to this higher figure of 11% were several hospitals that reported nearly all stays as Unknown race and a few other hospitals that reported close to half of their stays as Unknown race. These higher rates among a sample of hospitals are

Fig. 3



Sources: DHCFP case mix and observation data for 1998, quarters 1 and 2.

items recommended for data improvement, as they appear to reflect an overuse of this default category.

Age Breakouts

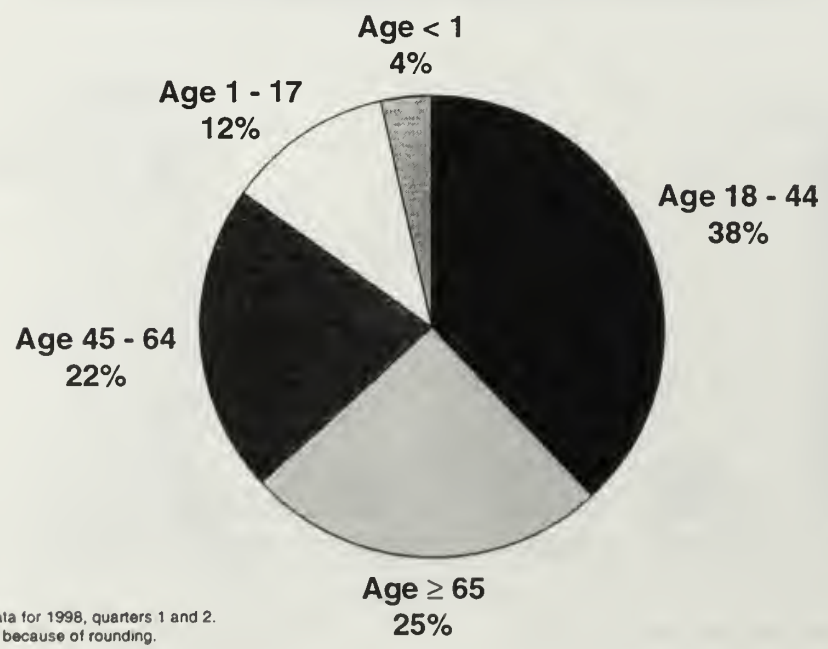
Statewide age breakouts are shown in Figure 4, Observation Stays by Age (below). Of note is that the middle grouping (ages 18-44) accounted for the largest percent of cases at 38%. The next largest grouping was the 65 and over age group at 25% followed closely by the 45-64 age group at 22%.

Of further note are the marked differences between the observation and inpatient case mix in terms of the percents in each age grouping (Figure 5, opposite). In particular, observation stays have a greater percent of their patients in the middle three age groupings, whereas the inpatient population has a much greater percent of discharges in the youngest and oldest two age groupings: less than 1 year and 65 years and over. Specifically, 4% of observation patients were less than 1 year of age as compared with approximately 12% in the inpatient case mix, primarily due to the volume of inpatient births. Furthermore, 25% of observation patients were 65 years of age or older as compared with almost 40% in the inpatient case mix. The percent for the pediatric grouping (ages 1-17) was noticeably larger in the observation data as compared to the inpatient data at 12% and 5% respectively. The middle grouping (ages 18-44) was also noticeably larger in the observation data as compared to the inpatient case mix at 38% and 27% respectively.

The average age statewide for all observation patients was 44 years of age. The average age for females and males was age 43 and age 44 respectively. Average age by hospital varies as shown in Figure 6 (page 8) and in Table 2 (page 38). Average age by hospital ranges from a low of age eight at Children's Hospital to a high of approximately age 64 at other hospitals.

Fig. 4

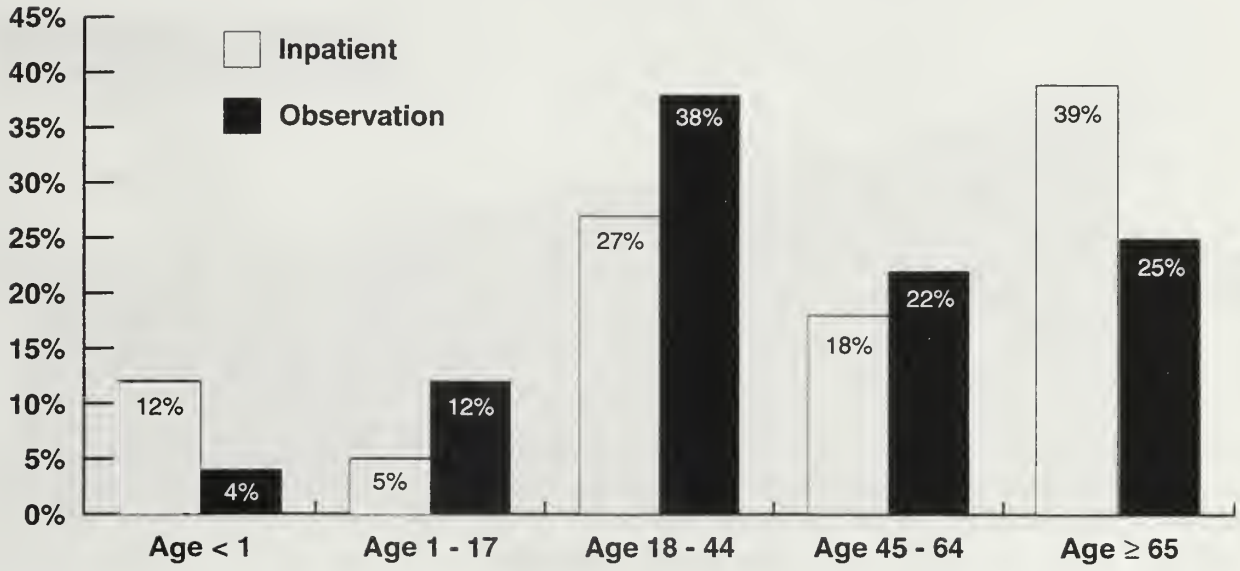
Observation Stays by Age



Source: DHCFP observation data for 1998, quarters 1 and 2.
Percentages do not total 100% because of rounding.

Fig. 5

Age Comparison by Percent of Inpatient versus Observation



Sources: DHCFP case mix and observation data.

Total Observation Patient Stays

As noted previously, there were approximately 74,000 total observation stays for the six months under study. This amounts to almost 20% of the volume of discharges seen in the inpatient case mix database which contains approximately 390,000 discharges for the same reporting period. The number of observation stays per hospital reported varied widely from a low of approximately 23 cases to a high of 3,282 cases as shown in Figure 7 (page 9) and also in further detail in Table 1 (page 36). Hospital differences in the number of stays are reflective of the size of the hospital, clinical service lines, and the hospital's relative emphasis on observation stay services.

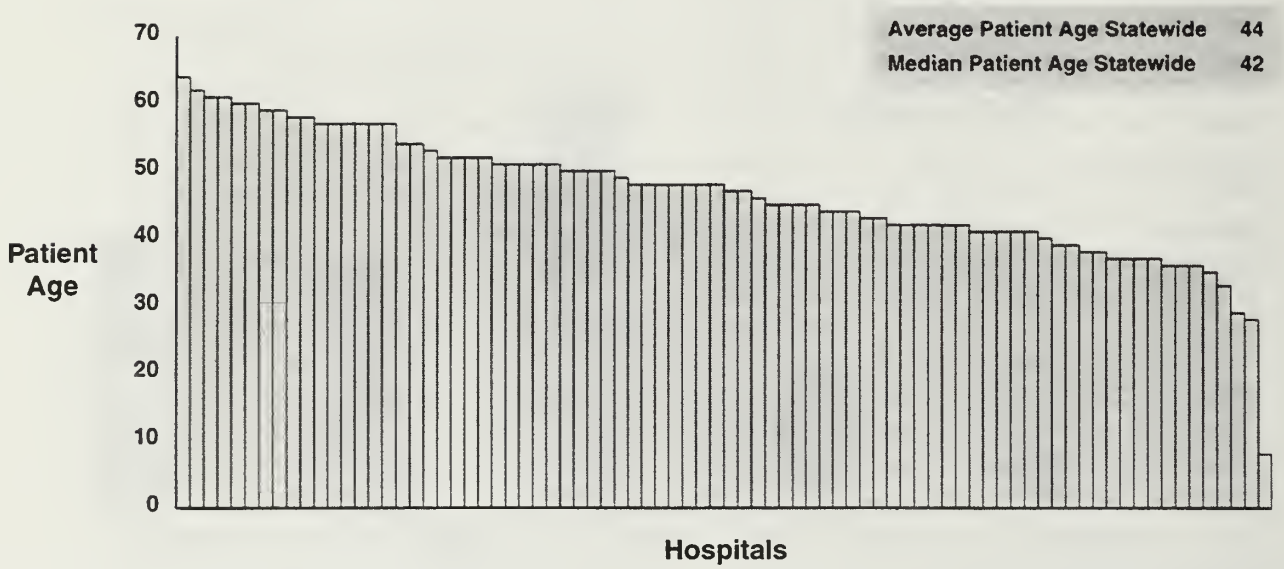
Figure 8 (page 10) shows the ratio of outpatient observation stays to inpatient discharges by hospital. The ratios mainly range from a low of 3% to a high of approximately 59%. While almost all hospitals have more inpatient discharges than observation stays, one hospital, Massachusetts Eye and Ear, has more outpatient observation patients than inpatients with the top ratio of 354% (Table 3, page 40).

Average Hours per Observation Stay

Generally, patients are seen in observation for a number of hours before they are either admitted to the hospital as an inpatient, transferred, or discharged home. The use of an observation unit or bed is to provide care in an outpatient setting in a more cost efficient manner. Illness severity and thus treatment would generally be expected to be of a less intensive nature than an inpatient stay. This is reflected in an average length of stay of 21 hours or approximately 1 day in the observation setting, as compared to an average length of stay of five days in the

Fig. 6

Average Patient Age by Hospital



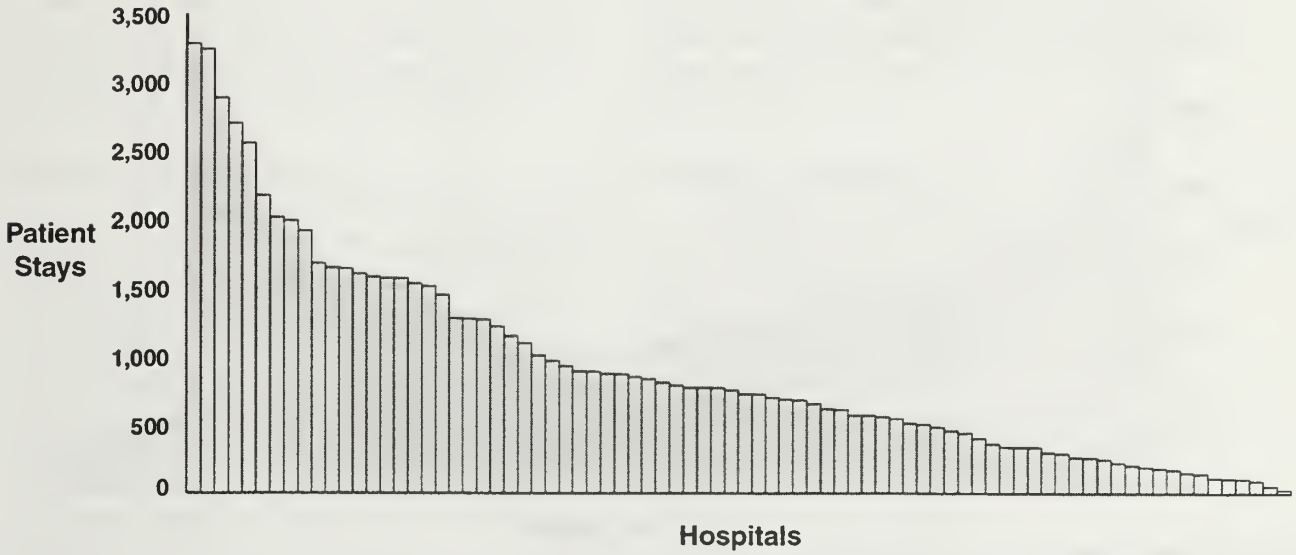
Source: DHCFP observation data for 1998, quarters 1 and 2.

Hospital Name	Average Age
Medical Center at Symmes	64
Noble Hospital	62
Clinton Hospital	61
Hallmark Health Care - Whidden	61
Mount Auburn Hospital	60
UMass Health System - Marlborough Hospital	60
Columbia MetroWest - Leonard Morse Campus	59
Deaconess-Nashoba Hospital	59
Milton Hospital	58
Hubbard Regional Hospital	58
Fairview Hospital	57
Northeast Health Systems - Addison Gilbert	57
AtlantiCare Medical Center	57
Wing Memorial Hospital and Medical Center	57
Deaconess-Glover Memorial Hospital	57
Berkshire Health Systems - Hillcrest Campus	57
Cambridge Hospital - Somerville Campus	54
Faulkner Hospital	54
Hallmark Health Care - Lawrence Memorial Hospital	53
New England Baptist Hospital	52
Cape Cod Health Systems - Cape Cod Hospital	52
Sturdy Memorial Hospital	52
Milford-Whitinsville Regional Hospital	52
Athol Memorial Hospital	51
Boston Medical Center - University	51
Hallmark Health Care - Melrose Wakefield	51
UMass/Memorial Health Care	51
Caritas Southwood	51
Holyoke Hospital	50
Hallmark Health Care - Malden Hospital	50
Caritas Norwood	50
Brigham and Women's Hospital	50
Winchester Hospital and Family Medical Center	49
Franklin Medical Center	48
Beth Israel Deaconess Medical Center	48
Cooley Dickinson Hospital	48
Mary Lane Hospital	48
Health Alliance Hospital, Inc.	48
Massachusetts General Hospital	48
Jordan Hospital	48

Hospital Name	Average Age
Haverhill Municipal Hospital	47
Dana Farber Cancer Institute	47
Morton Hospital and Medical Center	46
Southcoast Health Systems -St. Luke's (New Bedford)	45
Columbia MetroWest - Framingham Union Campus	45
Northeast Health Systems - Beverly	45
Cambridge Hospital - Cambridge Campus	45
South Shore Hospital	44
Nantucket Cottage Hospital	44
Cape Cod Health Systems - Falmouth	44
Good Samaritan Medical Center	43
Southcoast Health Systems - Charlton Memorial	43
Massachusetts Eye and Ear Infirmary	42
Southcoast Health Systems - Tobey Hospital	42
Harrington Memorial Hospital	42
Boston Regional Medical Center	42
St. Elizabeth's Medical Center	42
Mercy Hospital	42
Holy Family Hospital	41
Carney Hospital	41
Berkshire Health Systems, Inc. - Berkshire Medical Center	41
Saints Memorial Medical Center	41
North Adams Regional Hospital	41
Quincy Hospital	40
University of Massachusetts Medical Center	39
Emerson Hospital	39
Heywood Hospital	38
Brockton Hospital	38
Lowell General Hospital	37
Baystate Health Systems	37
Newton-Wellesley Hospital	37
Boston Medical Center - BCH	37
Lawrence General Hospital	36
New England Medical Center	36
Deaconess-Waltham Hospital	36
North Shore Medical Center - Salem Hospital	35
Anne Jaques Hospital	33
St. Vincent's Hospital	29
St. Anne's Hospital	28
Children's Medical Center	8

Fig. 7

Total Patient Stays by Hospital



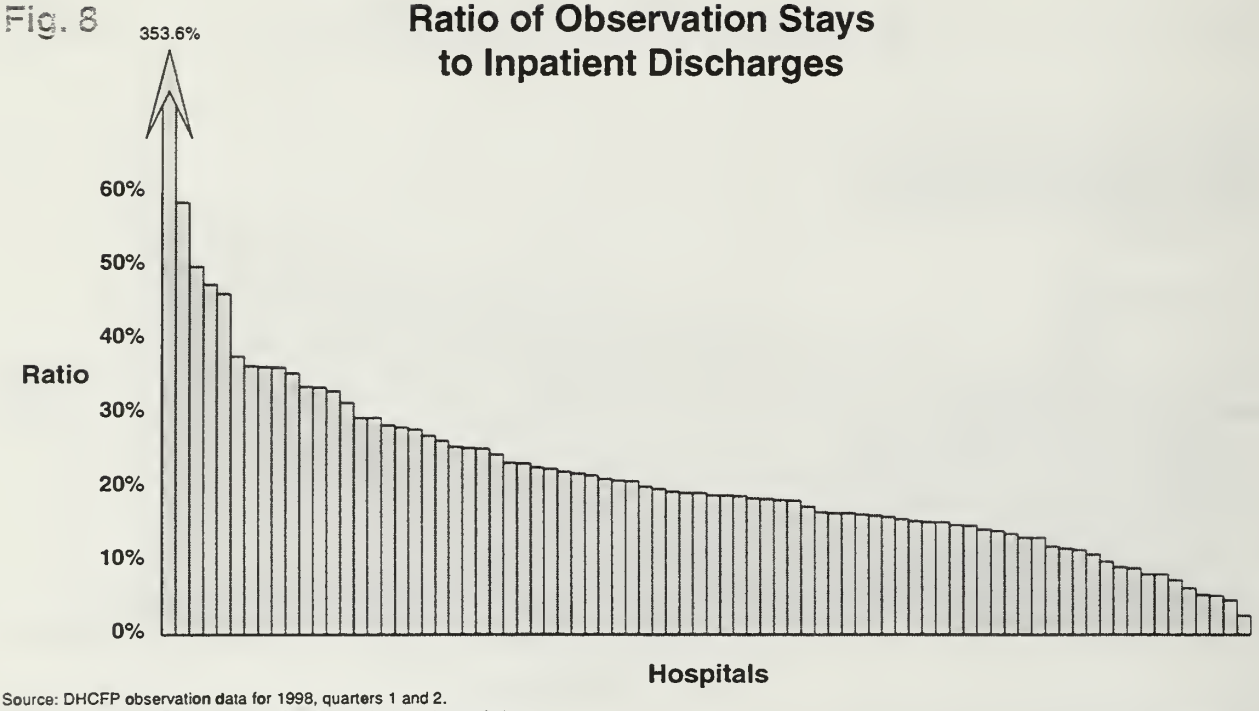
Source: DHCFP observation data for 1998, quarters 1 and 2.

Hospital Name	Patient Stays
Massachusetts General Hospital	3,282
Brigham and Women's Hospital	3,242
Massachusetts Eye and Ear Infirmary	2,882
Boston Medical Center - BCH	2,698
South Shore Hospital	2,551
Baystate Health Systems	2,170
North Shore Medical Center - Salem Hospital	2,013
Lawrence General Hospital	1,989
UMASS/Memorial Health Care	1,917
Columbia MetroWest - Framingham Union Campus	1,682
University of Massachusette Medical Center	1,651
Southcoast Health Systems -St. Luke's (New Bedford)	1,643
Beth Israel Deaconess Medical Center	1,605
Health Alliance Hospital, Inc.	1,585
Northeast Health Systems - Beverly	1,574
St. Elizabeth's Medical Center	1,573
Lowell General Hospital	1,535
Southcoast Health Systems - Charlton Memorial	1,514
Newton-Wellesley Hospital	1,450
Saints Memorial Medical Center	1,280
New England Baptist Hospital	1,279
Winchester Hospital end Family Medical Center	1,275
New England Medical Center	1,223
Children's Medical Center	1,153
Brockton Hospital	1,099
Carney Hospital	1,010
Mercy Hospital	971
Boston Medical Center - University	933
Berkshire Health Systems, Inc. - Berkshire Medical Center	896
Morton Hospital and Medical Center	893
Caritas Norwood	876
St. Anne's Hospital	875
Cape Cod Health Systems - Falmouth	855
Emerson Hospital	839
Good Samaritan Medical Center	812
Cooley Dickinson Hospital	792
Harrington Memorial Hospital	776
Holy Family Hospital	776
Boston Regional Medical Center	772
Franklin Medical Center	757

Hospital Name	Patient Stays
Hallmark Health Care - Melrose Wakefield	728
Heywood Hospital	728
Deaconess-Waltham Hospital	704
Holyoke Hospital	691
Quincy Hospital	683
Jordan Hospital	658
Columbia MetroWest - Leonard Morse Campus	619
Mount Auburn Hospital	613
North Adams Regional Hospital	574
Anna Jeques Hospital	572
Cape Cod Health Systems - Cape Cod Hospital	560
St. Vincent's Hospital	546
Hallmark Health Care - Malden Hospital	515
Milford-Whitinsville Regional Hospital	506
Sturdy Memorial Hospital	486
UMASS Health System - Marlborough Hospital	461
Mary Lane Hospital	441
Hubbard Regional Hospital	403
Deaconess-Nashoba Hospital	362
Milton Hospital	341
Northeast Health System - Addison Gilbert	338
Caritas Southwood	336
Cambridge Hospital - Cambridge Campus	297
Faulkner Hospital	291
Haverhill Municipal Hospital	262
Athol Memorial Hospital	261
Noble Hospital	249
Wing Memorial Hospital and Medical Center	223
Hallmark Health Care - Lawrence Memorial Hospital	203
Cambridge Hospital - Somerville Campus	191
Clinton Hospital	182
Fairview Hospital	170
Deaconess-Glover Memorial Hospital	150
Berkshire Health Systems - Hillcrest Campus	141
Medical Center at Symmes	110
Southcoast Health Systems - Tobey Hospital	105
Hallmark Health Care - Whidden	102
AtlantiCare Medical Center	88
Nantucket Cottage Hospital	51
Dana Ferber Cancer Institute	23

Fig. 8

Ratio of Observation Stays to Inpatient Discharges



Source: DHCFP observation data for 1998, quarters 1 and 2.
Note: Mass. Eye and Ear has a ratio of 354% and is the only hospital with more observation stays than inpatients.

Hospital Name	Ratio
Massachusetts Eye and Ear Infirmary	353.6%
Mary Lane Hospital	58.6%
Hubbard Regional Hospital	49.9%
New England Baptist Hospital	47.5%
Boston Medical Center - BCH	46.2%
Lawrence General Hospital	37.7%
St. Anne's Hospital	36.4%
Athol Memorial Hospital	36.3%
Deaconess-Neshoba Hospital	36.2%
Harrington Memorial Hospital	35.4%
Cape Cod Health Systems - Falmouth	33.6%
Health Alliance Hospital, Inc.	33.5%
Saints Memorial Medical Center	33.0%
Heywood Hospital	31.4%
North Shore Medical Center - Salem Hospital	29.4%
Northeast Health Systems - Addison Gilbert	29.4%
Franklin Medical Center	28.4%
Columbia MetroWest - Framingham Union Campus	28.1%
South Shore Hospital	27.8%
UMASS Health System - Marlborough Hospital	27.0%
Morton Hospital and Medical Center	26.3%
Clinton Hospital	25.5%
Lowell General Hospital	25.3%
Carney Hospital	25.2%
Winchester Hospital and Family Medical Center	24.4%
Wing Memorial Hospital and Medical Center	23.3%
North Adams Regional Hospital	23.2%
Columbia MetroWest - Leonard Morse Campus	22.7%
Boston Medical Center - University	22.5%
Hallmark Health Care - Malden Hospital	22.1%
Fairview Hospital	21.9%
Cooley Dickinson Hospital	21.6%
Boston Regional Medical Center	21.1%
Northeast Health Systems - Beverly	20.9%
Nantucket Cottage Hospital	20.8%
St. Elizabeth's Medical Center	20.1%
Deaconess-Waltham Hospital	19.8%
Southcoast Health Systems - Charlton Memorial	19.4%
Haverhill Municipal Hospital	19.2%
Emerson Hospital	19.2%

Hospital Name	Ratio
Brockton Hospital	18.9%
Mercy Hospital	18.9%
University of Massachusetts Medical Center	18.8%
Newton-Wellesley Hospital	18.5%
UMASS/Memorial Health Care	18.4%
Caritas Norwood	18.3%
Southcoast Health Systems -St. Luke's (New Bedford)	18.2%
Massachusetts General Hospital	17.4%
Milford-Whitinsville Regional Hospital	16.6%
Berkshire Health Systems, Inc. - Berkshire Medical Center	16.5%
Noble Hospital	16.5%
Milton Hospital	16.3%
Jordan Hospital	16.2%
Holyoke Hospital	16.0%
Sturdy Memorial Hospital	15.7%
Anna Jaques Hospital	15.4%
New England Medical Center	15.3%
Holy Family Hospital	15.3%
Brigham and Women's Hospital	14.9%
Quincy Hospital	14.8%
Hallmark Health Care - Melrose Wakefield	14.3%
Caritas Southwood	14.1%
Children's Medical Center	13.7%
Deaconess-Glover Memorial Hospital	13.2%
Baystate Health Systems	13.2%
Good Samaritan Medical Center	12.0%
Berkshire Health Systems - Hillcrest Campus	11.7%
Cambridge Hospital - Cambridge Campus	11.5%
Mount Auburn Hospital	10.9%
Medical Center at Symmes	9.9%
Faulkner Hospital	9.2%
Cambridge Hospital - Somerville Campus	9.0%
Cape Cod Health Systems - Cape Cod Hospital	8.2%
Beth Israel Deaconess Medical Center	8.2%
Hallmark Health Care - Lawrence Memorial Hospital	7.4%
Southcoast Health Systems - Tobey Hospital	6.3%
Dana Farber Cancer Institute	5.4%
St. Vincent's Hospital	5.3%
Hallmark Health Care - Whidden	4.7%
AtlantiCare Medical Center	2.6%

inpatient setting. Average service units per hospital range from a low of eight to a high of 35 hours excluding outliers (Figure 9, page 12). Only 6% of reported stays were in observation for less than 2 hours and approximately 95% were in observation for less than 48 hours. Further detail on average hours by hospital is displayed in Table 4 (page 42).

Observation Stay Charges

As noted previously, the average statewide charge for an observation stay is approximately $3,200 with a median of approximately $2,400. Average charges and total charges vary by hospital as shown in further detail in Table 5 (page 44). Average charges range from a low of approximately $700 to a high of $7,000 per hospital. In addition, only 5% of patient stays had reported charges of approximately $500 or less, while 95% of patient stays had reported charges of approximately $9,000 or less.

Total charges per hospital also show a wide range from a low of about $58,000 at a small hospital to a high of nearly $23 million at one of the larger hospitals (Figure 10, page 13). Differences in total charges are in part reflective of a hospital's size, clinical service lines, and a hospital's relative emphasis on observation stay services.

Statewide hospital observation stays for the six months under study account for total charges of approximately $240,000,000 (Table 5, page 44). Using the first six months of data as a benchmark, total charges for observation stays reported to the Division may approach an estimated figure of just under a half billion dollars for the full year compared with seven to eight billion dollars for inpatient case mix.

Statewide Top Diagnoses

Of the 73,662 patient stays reported for the six months under study, over 73,000 or 99% were reported with a principal diagnosis. Missing principal diagnoses were mainly from a few problematic submissions.

For those patient stays with a valid diagnosis, cardiac and antepartum-related care predominated in the observation stay data (Figure 11, page 14). Specifically, many observation stays encompassed diagnoses of chest pain, premature labor, and false labor. There were also a significant number of respiratory cases.

Statewide Top Procedures

Of the 73,662 patient stays reported for the six months under study, 31,285 or 42.5% were reported with a principal procedure. For those patient stays with a valid ICD-9-CM code, antepartum and cardiac-related care predominated. Specifically, many observation stay patients were provided with fetal monitoring services, as well as other diagnostic procedures, such as treadmill stress tests and CAT scans (Figure 12, page 15). In addition, some patients were placed in observation post ambulatory surgery or after other procedures requiring extended recoveries, such as after cardiac catheterization procedures.

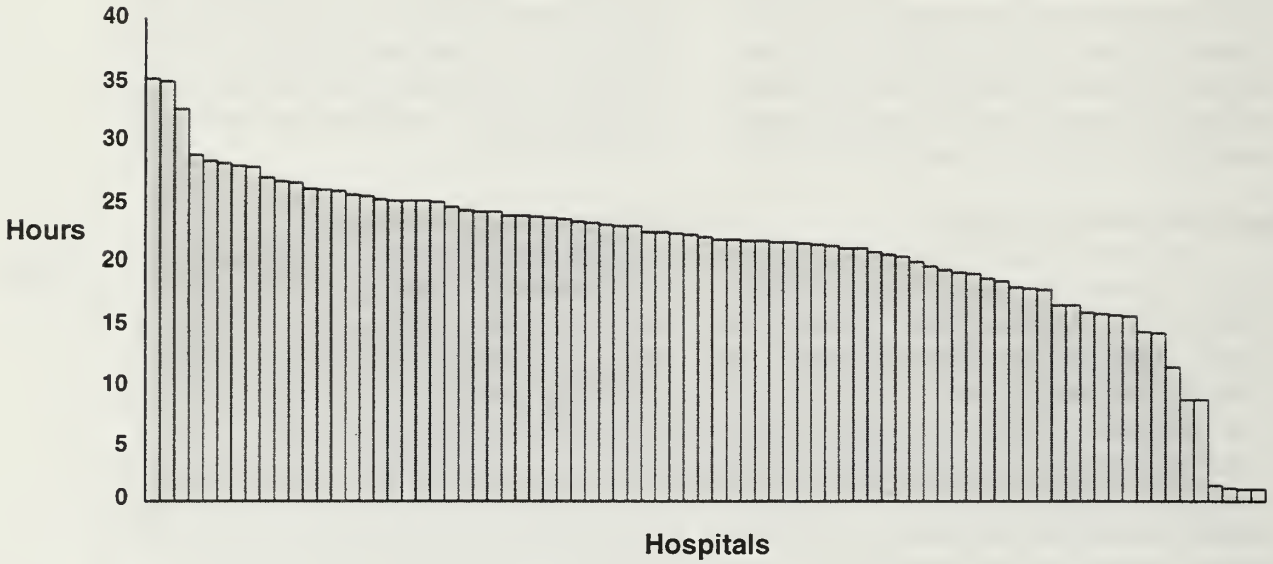
Similarly, 33,885 or 46% of stays were reported with at least one CPT code. Observation evaluation and management CPT codes made up over 25% of the cases reported in the first CPT code field (CPT1) and included low to high complexity cases (Figure 13, page 16). CPT1 is the data field name used for reporting the first CPT code for each patient stay in the outpatient observation data. Fetal monitoring, laparoscopic and endoscopic procedures also were common CPT procedures. Many of the procedures reported in the first CPT code field dovetailed with the top principal ICD-9-CM procedures listed above, including fetal monitoring, laparoscopic procedures, and cardiac catheterization.

Statewide Top Payers

As presented in Figure 14, Payer Type Comparison by Percent of Inpatient versus Observation (page 18), HMO is one of the

Fig. 9

Average Length of Stay by Hospital

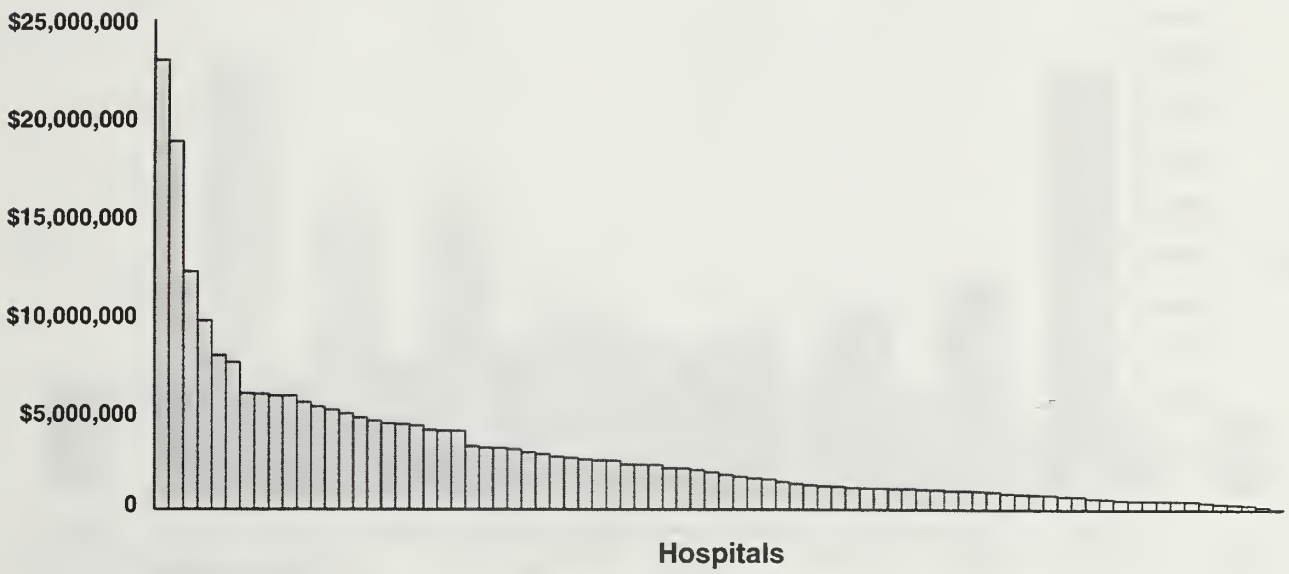


Source: DHCFP observation data for 1998, quarters 1 and 2.
Note: Excludes one problematic hospital submission with 6,000+ average hours. Since the completion of this analysis, St. Anne's Hospital has submitted corrected service unit data.

Hospital Name	Average Length of Stay in Hours	Hospital Name	Average Length of Stay in Hours
Southcoast Health Systems - St. Luke's (New Bedford)	34.9	Boston Regional Medical Center	21.6
Athol Memorial Hospital	34.7	Boston Medical Center - BCH	21.6
Noble Hospital	32.4	Franklin Medical Center	21.5
Morton Hospital and Medical Center	28.6	Hallmark Health Care - Melrose Wakefield	21.5
Boston Medical Center - University	28.1	Medical Center at Symmes	21.4
Dana Farber Cancer Institute	27.9	North Shore Medical Center - Salem Hospital	21.4
AtlantiCare Medical Center	27.7	New England Medical Center	21.3
Milford-Whitinsville Regional Hospital	27.6	Northeast Health Systems - Addison Gilbert	21.2
Caritas Norwood	26.7	Deaconess-Glover Memorial Hospital	21.1
Good Samaritan Medical Center	26.4	Mount Auburn Hospital	20.9
Cooley Dickinson Hospital	26.3	Hallmark Health Care - Lawrence Memorial Hospital	20.9
Wing Memorial Hospital and Medical Center	25.8	Deaconess-Waltham Hospital	20.6
Southcoast Health Systems - Tobey Hospital	25.7	Harrington Memorial Hospital	20.4
Baystate Health Systems	25.6	Beth Israel Deaconess Medical Center	20.2
Holyoke Hospital	25.3	Carney Hospital	19.8
Milton Hospital	25.2	Winchester Hospital and Family Medical Center	19.4
Jordan Hospital	24.9	Columbia MetroWest - Framingham Union Campus	19.1
Faulkner Hospital	24.8	Saints Memorial Medical Center	18.9
Health Alliance Hospital, Inc.	24.8	Berkshire Health Systems, Inc. - Berkshire Medical Center	18.8
Brockton Hospital	24.8	Cape Cod Health Systems - Cape Cod Hospital	18.4
Mary Lane Hospital	24.7	Newton-Wellesley Hospital	18.2
Clinton Hospital	24.3	North Adams Regional Hospital	17.7
Deaconess-Nashoba Hospital	24.0	Mercy Hospital	17.6
Sturdy Memorial Hospital	23.9	South Shore Hospital	17.5
Lowell General Hospital	23.9	Lawrence General Hospital	16.2
Haverhill Municipal Hospital	23.6	Massachusetts Eye and Ear Infirmary	16.2
Children's Medical Center	23.6	Quincy Hospital	15.6
Emerson Hospital	23.5	Nantucket Cottage Hospital	15.5
Southcoast Health Systems - Charlton Memorial	23.4	Heywood Hospital	15.4
Northeast Health Systems - Beverly	23.3	Hallmark Health Care - Malden Hospital	15.3
Columbia MetroWest - Leonard Morse Campus	23.1	St. Elizabeth's Medical Center	14.0
Hubbard Regional Hospital	23.0	Anna Jaques Hospital	13.9
Cape Cod Health Systems - Falmouth	22.8	New England Baptist Hospital	11.1
Caritas Southwood	22.7	Fairview Hospital	8.4
Berkshire Health Systems - Hillcrest Campus	22.7	St. Vincent's Hospital	8.4
Hallmark Health Care - Whidden	22.2	Cambridge Hospital - Cambridge Campus	1.3
University of Massachusetts Medical Center	22.2	Cambridge Hospital - Somerville Campus	1.1
Brigham and Women's Hospital	22.1	Holy Family Hospital	1.0
Massachusetts General Hospital	22.0	St. Anne's Hospital	1.0
UMASS Health System - Marlborough	21.8		

Fig. 10

Total Charges by Hospital



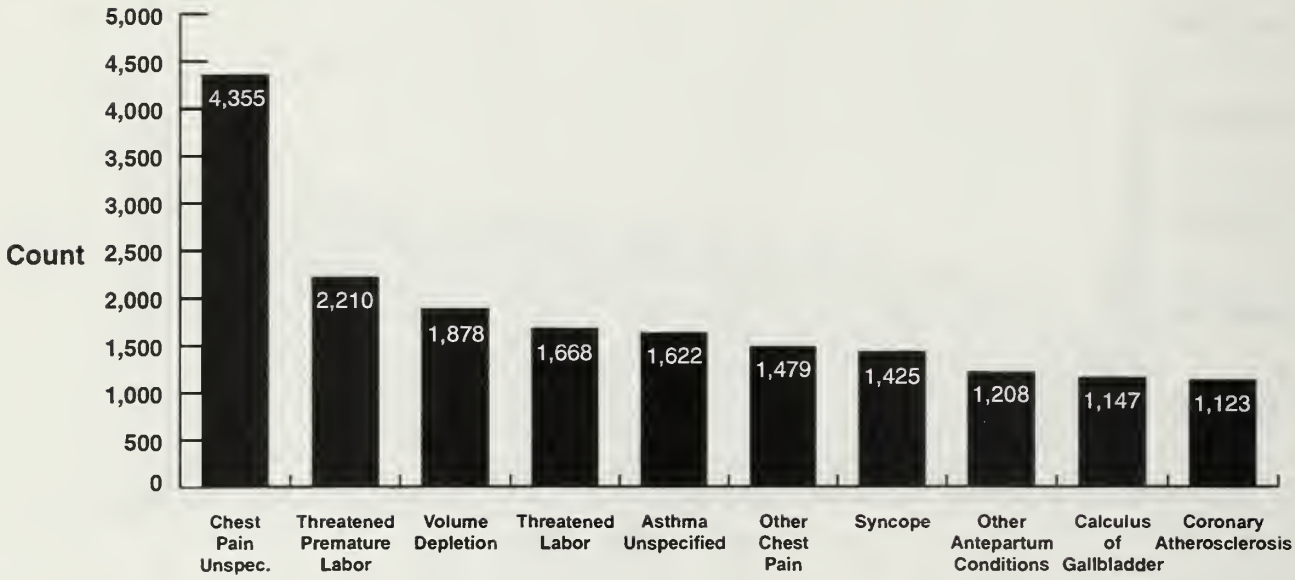
Source: DHCFP observation data for 1998, quarters 1 and 2.

Hospital Name	Total Charges
Massachusetts General Hospital	$22,949,940
Brigham and Women's Hospital	$18,761,069
Massachusetts Eye and Ear Infirmary	$12,129,627
Beth Israel Deaconess Medical Center	$9,636,535
Boston Medical Center - BCH	$7,858,507
University of Massachusetts Medical Center	$7,525,164
Newton-Wellesley Hospital	$5,932,698
South Shore Hospital	$5,906,260
Baystate Health Systems	$5,819,492
Columbia MetroWest - Framingham Union Campus	$5,809,820
Children's Medical Center	$5,487,475
New England Medical Center	$5,259,210
Lowell General Hospital	$5,111,054
Northeast Health Systems - Beverly	$4,918,840
Lawrence General Hospital	$4,692,057
St. Elizabeth's Medical Center	$4,537,882
North Shore Medical Center - Salem Hospital	$4,400,034
Southcoast Health Systems - St. Luke's (New Bedford)	$4,370,447
Boston Medical Center - University	$4,313,180
UMASS/Memorial Health Care	$4,072,027
Mercy Hospital	$4,036,370
Saints Memorial Medical Center	$4,034,163
Morton Hospital and Medical Center	$3,236,133
Winchester Hospital and Family Medical Center	$3,158,484
Holy Family Hospital	$3,145,851
Brockton Hospital	$3,075,542
St. Anne's Hospital	$2,925,920
Berkshire Health Systems, Inc. - Berkshire Medical Center	$2,852,501
New England Baptist Hospital	$2,706,402
Health Alliance Hospital, Inc.	$2,645,570
Southcoast Health Systems - Charlton Memorial	$2,565,174
Cooley Dickinson Hospital	$2,523,336
Good Samaritan Medical Center	$2,506,977
Franklin Medical Center	$2,307,580
Jordan Hospital	$2,280,341
Cape Cod Health Systems - Falmouth	$2,280,233
Holyoke Hospital	$2,116,743
Quincy Hospital	$2,102,630
Columbia MetroWest - Leonard Morse Campus	$2,024,556
Caritas Norwood	$1,904,403

Hospital Name	Total Charges
Cape Cod Health Systems - Cape Cod Hospital	$1,781,695
Milford-Whitinsville Regional Hospital	$1,691,904
Boston Regional Medical Center	$1,615,229
Sturdy Memorial Hospital	$1,560,567
Mount Auburn Hospital	$1,436,544
Hallmark Health Care - Melrose Wakefield	$1,339,644
Harrington Memorial Hospital	$1,271,213
Mary Lane Hospital	$1,219,482
North Adams Regional Hospital	$1,188,199
Faulkner Hospital	$1,125,294
Carney Hospital	$1,114,167
UMASS Health System - Marlborough Hospital	$1,111,129
Heywood Hospital	$1,081,627
Haverhill Municipal Hospital	$1,068,604
Cambridge Hospital - Cambridge Campus	$1,037,826
Caritas Southwood	$1,026,149
Northeast Health Systems - Addison Gilbert	$968,774
Deaconess-Waltham Hospital	$965,240
Emerson Hospital	$949,887
Milton Hospital	$902,010
Hallmark Health Care - Malden Hospital	$814,187
Anna Jaques Hospital	$781,817
Hubbard Regional Hospital	$762,382
Deaconess-Nashoba Hospital	$739,135
Noble Hospital	$686,374
Berkshire Health Systems - Hillcrest Campus	$665,154
Cambridge Hospital - Somerville Campus	$585,520
Fairview Hospital	$553,455
AtlantiCare Medical Center	$494,709
Wing Memorial Hospital and Medical Center	$468,829
Clinton Hospital	$463,903
Medical Center at Symmes	$454,711
Athol Memorial Hospital	$442,351
Hallmark Health Care - Lawrence Memorial Hospital	$439,498
St. Vincent's Hospital	$374,305
Hallmark Health Care - Whidden	$302,131
Deaconess-Glover Memorial Hospital	$262,788
Southcoast Health Systems - Tobey Hospital	$235,397
Dana Farber Cancer Institute	$135,378
Nantucket Cottage Hospital	$57,672

Fig. 11

Top Principal Diagnoses



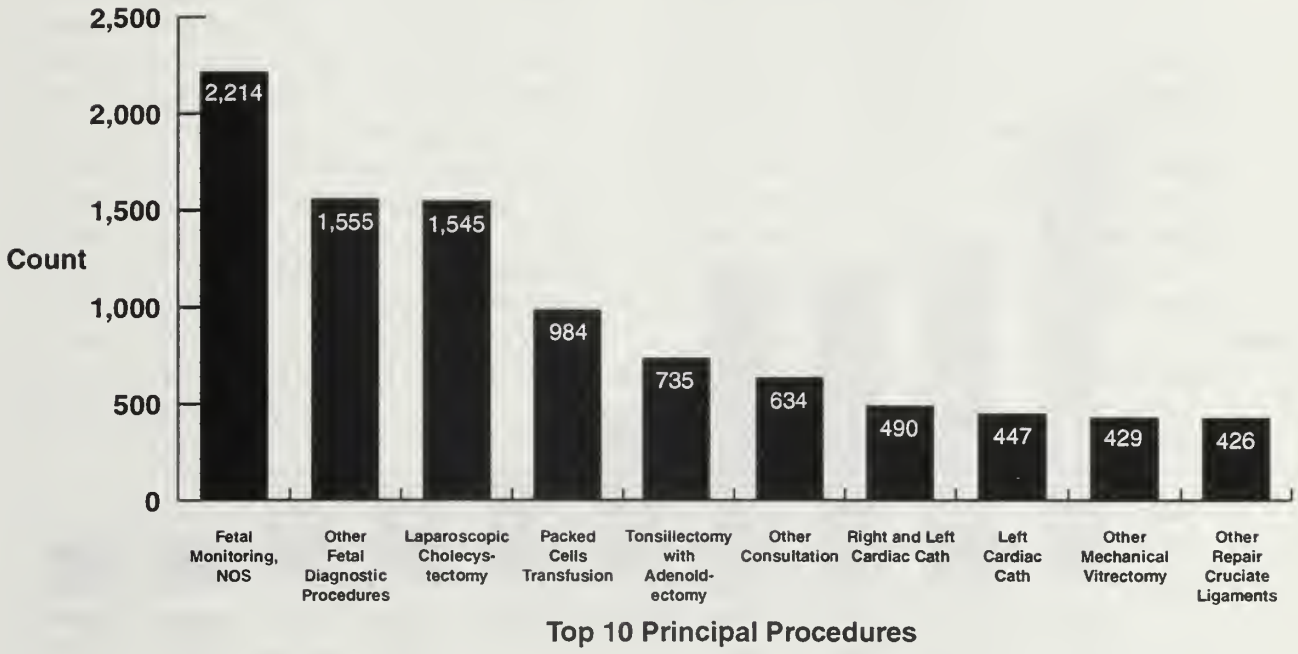
Top 10 Principal Diagnoses

Sources: DHCFP observation data for 1998, quarters 1 and 2; ICD-9-CM Codes.

Top 30 Principal Diagnoses	Description	Count
78650	Unspecified Chest Pain	4,355
64403	Threatened Premature Labor, Antepartum	2,210
2765	Volume Depletion Disorder	1,878
64413	Other Threatened Labor, Antepartum	1,668
49390	Asthma, Unspecified Type, without Mention of Status Asthmaticus	1,622
78659	Other Chest Pain	1,479
7802	Syncope and Collapse	1,425
64893	Other Current Conditions Classifiable Elsewhere of Mother, Antepartum	1,208
57410	Calculus of Gallbladder with Other Cholecystitis, No Mention of Obstruction	1,147
41401	Coronary Atherosclerosis of Native Coronary Vessel	1,123
486	Pneumonia, Organism Unspecified	873
5589	Other and Unspecified Noninfectious Gastroenteritis and Colitis	826
42731	Atrial Fibrillation	770
4280	Congestive Heart Failure	733
78039	Other Convulsions	642
2859	Anemia, Unspecified	543
78903	Abdominal Pain, Right Lower Quadrant	527
46619	Acute Bronchiolitis Due to Other Infectious Organisms	510
5921	Calculus of Ureter	502
47410	Hypertrophy of Tonsil with Adenoids	492
49121	Obstructive Chronic Bronchitis with Acute Exacerbation	492
4644	Croup	479
49391	Asthma, Unspecified Type, with Status Asthmaticus	477
78900	Abdominal Pain, Unspecified Site	442
30500	Alcohol Abuse, Unspecified Drinking Behavior	442
64683	Other Specified Antepartum Complications	436
4111	Intermediate Coronary Syndrome	399
78652	Painful Respiration	333
7999	Unspecified Viral Infection	329
46611	Acute Bronchiolitis Due to Respiratory Syncytial Virus (RSV)	327

Fig. 12

Top Principal Procedures



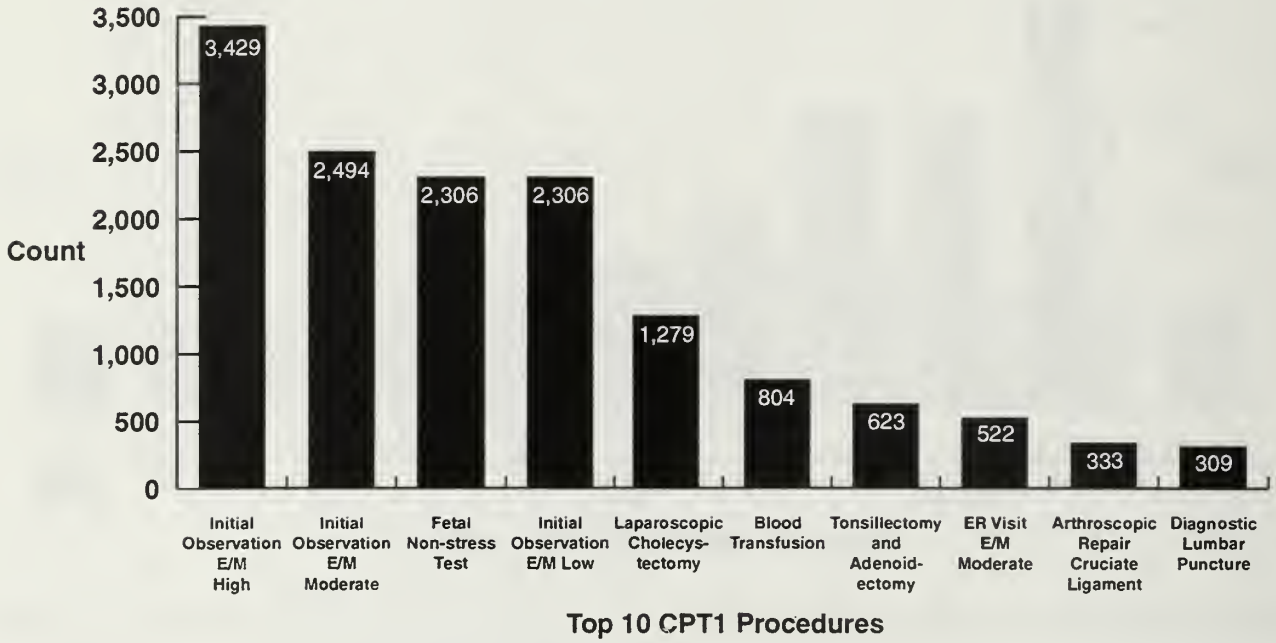
Top 10 Principal Procedures

Sources: DHCFP observation data for 1998, quarters 1 and 2; ICD-9-CM Codes.

Top 18 Principal Procedures	Description	Count
7534	Fetal Monitoring, Not Otherwise Specified	2,214
7535	Other Diagnostic Procedures On Fetus and Amnion	1,555
5123	Laparoscopic Cholecystectomy	1,545
9904	Transfusion of Packed Cells	984
283	Tonsillectomy with Adenoidectomy	735
8908	Other Consultation	634
3723	Combined Right and Left Heart Cardiac Catheterization	490
3722	Left Heart Cardiac Catheterization	447
1474	Other Mechanical Vitrectomy	429
8145	Other Repair of the Cruciate Ligaments	426
9929	Injection Or Infusion of Other Therapeutic Or Prophylactic Substance	424
0331	Spinal Tap	353
8659	Suture of Skin and Subcutaneous Tissue of Other Sites	342
2263	Ethmoidectomy	283
8944	Other Cardiovascular Stress Test	269
4516	Esophagogastroduodenoscopy (EGD) with Closed Biopsy	265
8703	Computerized Axial Tomography of Head	249
2188	Other Septoplasty	239

Fig. 13

Top CPT1 Procedures



Source: DHCFP observation data for 1998, quarters 1 and 2.
Note:CPT1 refers to the first reported CPT procedure.

Top 18 CPT1 Codes	Description	Count
99220	Initial observation care, per day, for the evaluation and management of a patient - high complexity	3,429
99219	Initial observation care, per day, for the evaluation and management of a patient - moderate complexity	2,494
59025	Fetal non-stress test	2,306
99218	Initial observation care, per day, for the evaluation and management of a patient - low complexity	2,306
56340	Laparoscopy, surgical; cholecystectomy (any method)	1,279
36430	Transfusion, blood or blood components	804
42820	Tonsillectomy and adenoidectomy; under age 12	623
99284	Emergency department visit for the evaluation and management of a patient - moderate complexity	522
29888	Arthroscopically aided anterior cruciate ligament repair/augmentation or reconstruction	333
62270	Spinal puncture, lumbar, diagnostic	309
30520	Septoplasty or submucous resection, with or without cartilage scoring, contouring or replacement with graft	284
49505	Repair initial inguinal hernia, age 5 years or over; reducible	284
59200	Insertion of cervical dilator (eg, laminaria, prostaglandin) (separate procedure)	284
67108	Repair of retinal detachment; with vitrectomy, any method, with or without air or gas tamponade, focal endolaser photocoagulation,cryotherapy, drainage of subretinal fluid, scleral buckling, and/or removal of lens by same technique	255
59050	Fetal monitoring during labor by consulting physician (ie, non-attending physician) with written report; supervision and interpretation	254
31255	Nasal/sinus endoscopy, surgical; with ethmoidectomy, total (anterior and posterior)	236
93510	Left heart catheterization, retrograde, from the brachial artery, axillary artery or femoral artery; percutaneous	236
43239	Upper gastrointestinal endoscopy including esophagus, stomach, and either the duodenum and/or jejunum as appropriate; with biopsy,single or multiple	227

largest payer categories for observation at 24% of all stays followed by traditional Medicare at 20% and traditional Medicaid at 10%. However, Medicare patients account for almost 25% of all stays when traditional Medicare is combined with Medicare Managed Care and Medicaid patients account for 14.5% of all stays when traditional Medicaid is combined with Medicaid Managed Care. Blue Cross Managed Care is the fourth largest Payer Type at 9%, followed by Commercial at 7% and Blue Cross Indemnity at 6%. Blue Cross patients combined account for 15% of all stays, while commercial patients combined account for 8%.

Of significance is the wide disparity shown in the percents for traditional Medicare between inpatient and outpatient observation. Inpatient stays were almost double that of the observation percent at 36% to 20% respectively. This disparity, however, appears consistent with the measurably smaller percent of observation patients found in the 65+ age group (25%) as compared with the inpatient (39%).

The breakout of Payer Type into its associated Payer Sources is presented in Figure 15 (page 19). The top Payer Source for observation stays is Medicare with 20% of cases, followed by Medicaid with 10%. As in the inpatient case mix data, traditional Medicare is the largest single payer source, yet as noted above accounts for a smaller percentage of the observation stays (20%) as compared with its percent of the inpatient discharges (36%). Traditional Medicaid accounts for 10% of the observation stays, slightly more than its 7% share of inpatient discharges. Medicare and Medicaid were followed by some of the other prominent payers in the state as shown in Figure 15.

There were just over 500 stays with missing primary payer data and the vast majority of these were due to a few problematic submissions and a small percent of invalid Payer Sources. A more detailed listing of Payer Sources is in Table 6 (page 46).

The data indicate that more than half of all stays were reported with one payer. Since many patients have only one insurance, None is a valid reporting payer option for the Secondary Payer Source. The top selection for Secondary Payer was None with 42,775 cases (58%). Self-pay accounted for 14% of cases, followed by traditional Medicaid with 8%. There were just over 500 stays with missing secondary payer data and the vast majority of these were due to a few problematic submissions.

Observation Source

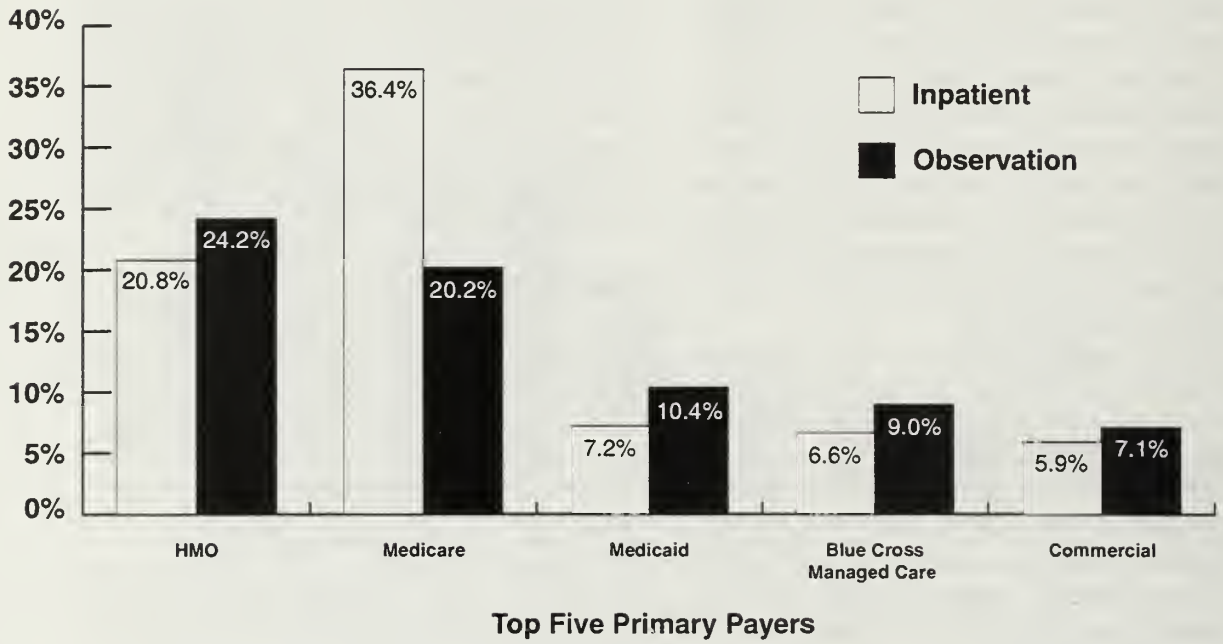
The Originating Outpatient Observation Source is the initial referring or transferring facility or primary referral source directing the patient to the hospital. For an observation visit, there are 16 available Observation Source categories most of which are displayed in Figure 16 (page 20).

The 16 observation sources can be broken out into three main areas of referring sources. These areas include: direct referrals; patient transfers from other facilities outside of the hospital; and patient transfers from within the hospital. For example, direct referrals would include physician referrals that send a patient directly to the hospital's observation unit for care. Transfers from other facilities encompass several other observation sources wherein patients would be referred to a hospital either by a skilled nursing facility (SNF) or by another acute care facility for further care or observation care. Within Hospital Referral includes patients that are transferred within the same hospital from one unit to observation for further care. An example of a Within Hospital Transfer might be a patient that is seen in the hospital's clinic and is then referred to the same hospital's observation unit for further monitoring or follow-up before being sent home.

Most of the observation data currently fall into a handful of Observation Source

Fig. 14

Payer Type Comparison by Percent of Inpatient versus Observation

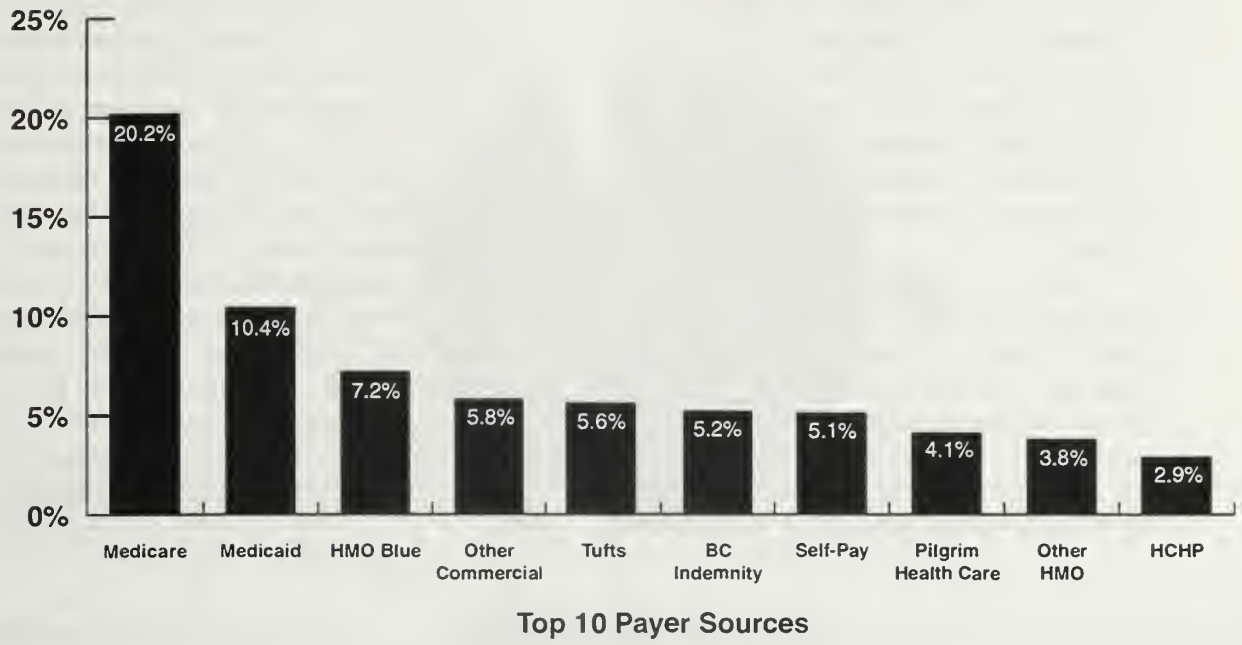


Sources: DHCFP case mix and observation data.
Note: Based on valid codes for 70,000+ stays.

Primary Payer	Inpatient	Observation
HMO	20.8%	24.2%
Medicare	36.4%	20.2%
Medicaid	7.2%	10.4%
Blue Cross Managed Care	6.6%	9.0%
Commercial	5.9%	7.1%
Blue Cross Indemnity	4.3%	6.2%
Self-Pay	3.2%	5.1%
Medicare Managed Care	4.7%	4.6%
Medicaid Managed Care	3.1%	4.1%
PPO and Other Managed Care	3.2%	3.4%
Free Care	1.4%	2.2%
Commercial Managed Care	1.1%	1.1%
Other Government	0.9%	1.0%
Worker's Compensation	0.6%	0.9%
All Other	0.5%	0.6%

Fig. 15

Top Primary Payer Sources by Percent of Observation Stays



Source: DHCFP observation data for 1998, quarters 1 and 2.
Note: Based on valid codes for 70,000+ stays.

Top 25 Payer Sources	Percent of Stays
Medicare	20.2%
Medicaid	10.4%
HMO Blue	7.2%
Other Commercial	5.8%
Tufts Associated Health Plan	5.6%
Blue Cross Indemnity	5.2%
Self-Pay	5.1%
Pilgrim Health Care	4.1%
Other HMO	3.8%
Harvard Community Health Plan	2.9%
Free Care	2.1%
Fallon Community Health Plan	2.1%
Medicare HMO - Tufts Secure Horizons	1.9%
Medicaid Managed Care-Primary Care Clinician (PCC)	1.7%
Tufts Total Health Plan PPO	1.6%
HCHP-Pilgrim HMO (integrated product)	1.4%
Medicare HMO - Other	1.3%
PPO and Other Managed Care	1.2%
Medicaid Managed Care Other (not listed elsewhere)	1.2%
Healthsource CMHC HMO	1.1%
Medicare HMO - HCHP First Seniority	1.0%
Worker's Compensation	0.9%
US Healthcare	0.7%
Other Government	0.6%
Neighborhood Health Plan	0.6%

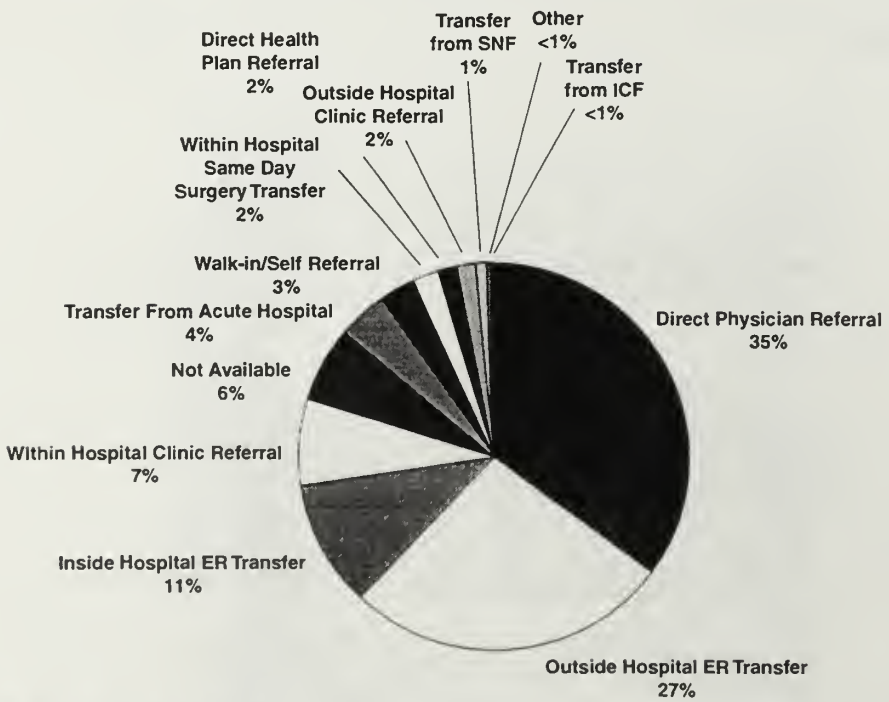
categories. The top category statewide is Direct Physician Referral with 35% of cases reported, followed by Outside Hospital ER Transfer with 27%, Inside Hospital ER Transfer with 11%, Within Hospital Clinic Referral with 7%, and Information Not Available with 6% of cases. There was a small amount of reporting of Within Hospital Same Day Surgery Transfer (SDS) at just 2% of all cases. Some of these categories may be overstated or understated as described in more detail in the data quality improvement section that follows.

Secondary Observation Source is the subsequent data field used when the patient is seen in multiple health care areas before being referred or transferred to observation services. An example of Secondary Observation Source is when a patient is referred from a skilled nursing facility (SNF) to the hospital's Same Day Surgery (SDS) and is then referred to the Outpatient Observation area. The Originating Observation Source would be reported as SNF and the Secondary Observation Source would be reported as Within Hospital SDS Transfer.

Analysis results indicted that hospitals have not been actively using this Secondary Observation Source data field. The reason for this could be related to the newness of the data field as well as the implementation adjustment with this new database. Secondary Admission Source, analogous to Secondary Observation Source, is not currently a field for reporting on the Inpatient Case Mix Database, though it will be added beginning on October 1, 2000. Thus, hospitals have only been familiar with reporting the Originating Admission Source, analogous to Originating Observation Source on the outpatient observation data, for the inpatient case mix data.

Fig. 16

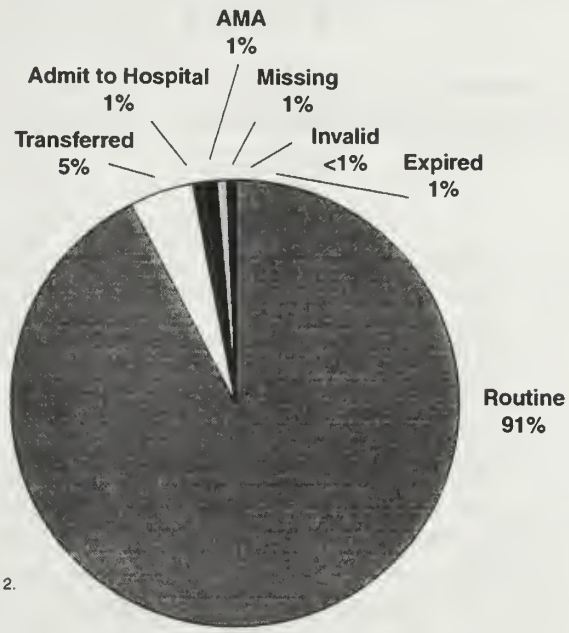
Observation Source



Source: DHCFP observation data for 1998, quarters 1 and 2.
Note: Percentages do not total 100% because of rounding.

Fig. 17

Patient Departure Status



Source: DHCFP observation data for 1998, quarters 1 and 2.
Note: "Admit to Hospital" for observation data by definition should not refer to acute inpatient admissions, but to other types of admissions (e.g., admission to a SNF).
Percentages do not total 100% because of rounding.

Patient Departure Status

Departure status refers to the patient's disposition upon discharge from the hospital. Hospitals have five discharge selections from which to choose when a patient leaves observation care. These include: Routine Discharge; Admit to Hospital; Transferred; Left Against Medical Advice; and Expired.

Of note is that for the Outpatient Observation Database there are fewer Patient Departure Status codes for hospitals to report as compared with the inpatient case mix data. This reflects the fact that there are a wider variety of discharge options for inpatients.

The overwhelming majority of patient discharges from observation statewide were Routine (91%). Routine discharges include self-care patients. Routine patients are discharged without needing further hospital services (see Figure 17, above).

Transferred patients from observation care made up the second most frequently reported departure status at 5%. Transferred patients include those patients that require further nursing care or inpatient care. Some patient transfers are necessary due to the absence of certain types of inpatient services provided at the initial facility. In these instances, patients are transferred from the initial facility to another institution to receive the necessary health care services.

The remaining categories, Admit to Hospital, Left Against Medical Advice, and Expired, each account for 1% or less of the data. Admit to Hospital is meant to refer to patients that are discharged from observation care and then are admitted to another area of the hospital which is not considered acute inpatient, such as a SNF unit or facility. Left Against Medical Advice includes patients that have departed from observation care without medical approval.

Other information reported for departure status included missing and invalid values. Combined, these two types of values accounted for less than 1% of the data and were mainly due to a few problematic submissions. For more information on data qual-

ity related to departure status, please refer to *Highlights for Data Improvement.*

ZIP Code

The data element ZIP Code is the ZIP Code of patient residence and is a required element for all stays. The data analysis showed that less than 1% of the data were reported with a missing or unknown ZIP Code. Thus, there did not appear to be an overuse of the default code for Unknown ZIP Code.

Highlights for Data Improvement

During the analysis, the Division of Health Care Finance and Policy found several data elements where one code was reported for the majority of stays, as well as some unusually high or low numbers. The five data elements of note include Race, Service Units (hours), Observation Charges, Observation Source and Patient Departure Status. Since the analysis for this six month period included data reported to the Division as of December 21, 1998, hospitals that have subsequently corrected their data in later submissions would not be included in this analysis.

This section provides a detailed review of areas highlighted for data improvement. The purpose is to focus hospital attention on these areas and to facilitate improved data reporting.

Patient Race

The main finding for quality improvement of the race data was overuse in the reporting of the Unknown race code, which was higher than expected at 11% of all cases (Figure 18, page 24). Reporting of race as Unknown was double the 5% reported in the Inpatient Case Mix Database. Further analysis of data in this field showed that some hospitals reported high figures, from 15% to a high of 100% of their cases as Unknown. Thus, some hospitals appear to have used Unknown as a default code for many or even for all of their patients.

Unknown is a valid race code. However, it is meant to be used as a reporting alternative only when the actual information is unavailable. The Division of Health Care Finance and Policy expects that the reporting of Unknown for observation stay patients should be used by hospitals in a limited fashion, not as a default code. However, this review demonstrated that a select number of hospitals used Unknown as the obser-

Summary of Improvement Areas Affecting Some Hospitals

Patient Race. Reporting of Unknown was higher than expected.

Hours. Limited reporting of negative, zero, very low or very high hours, and default values.

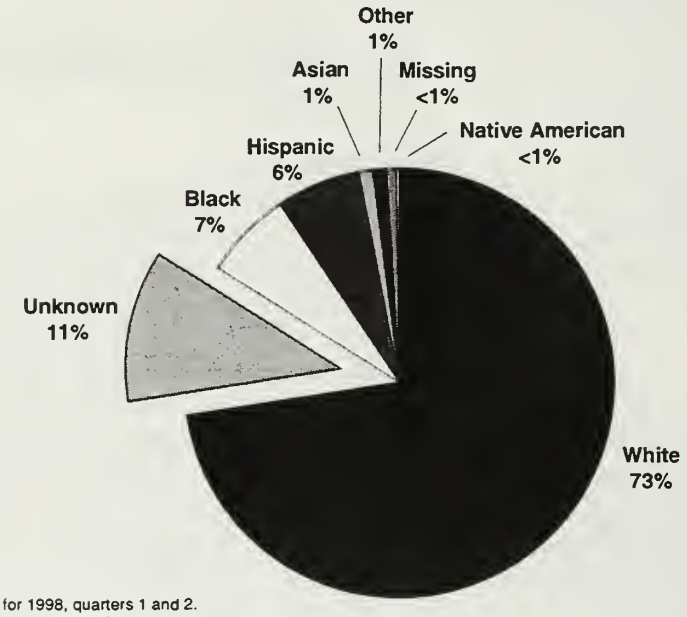
Observation Charges. Limited reporting of very low charges such as zero, $1.00 and other charges below $100.00, and very high charges from $20,000 up to $101,000.

Observation Source. Reporting Outside Hospital ER Transfer (while showing little or no stays from its own ER) and/or reporting Direct Physician Referral for nearly all cases.

Patient Departure Status. The majority reported Routine Departure — some hospitals reported 100% as Routine Departure and others reported 0%.

Fig. 18

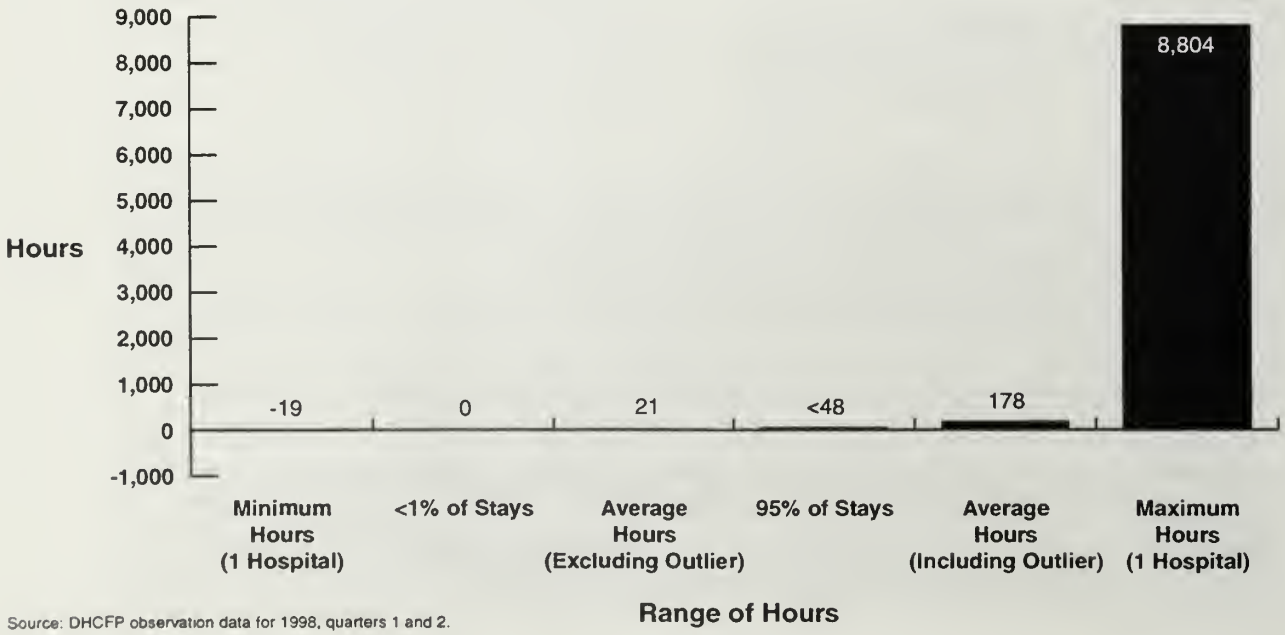
Statewide Observation Stays by Race



Source: DHCFP observation data for 1998, quarters 1 and 2.
Note: Percentages do not total 100% because of rounding.

Fig. 19

Service Units Including Outliers



Source: DHCFP observation data for 1998, quarters 1 and 2.

vation patient's reported race at a higher rate than the statewide average.

Service Units (Hours)

Service Units in outpatient observation capture the amount of time patients spend as in observation. The unit of service is reported by hospitals in hours. The majority of Service Units or hours appear to be reported within reasonable limits. For instance, only 6% of reported patient stays were in observation for less than two hours, approximately 95% were in observation for less than 48 hours, and the average service unit was 21 hours (Figure 19, opposite).

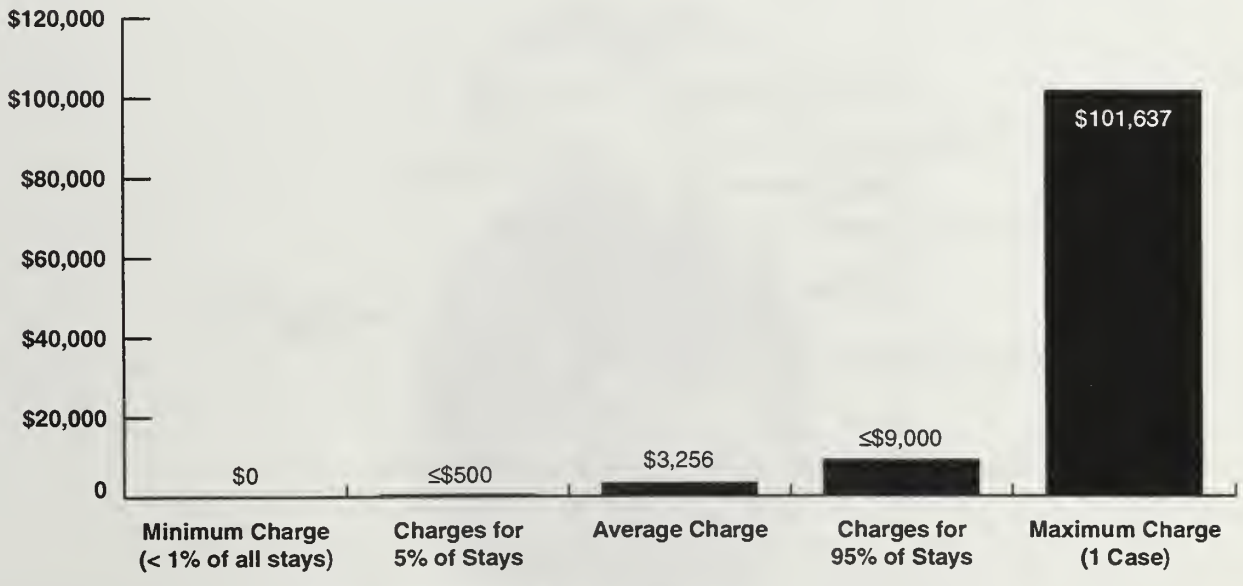
However, there were selective outliers or pockets of discrete problem reporting areas including the reporting of some negative units, reporting of zero units, reporting of very low units, and very high units (greater than 1-5 weeks). A small amount of negative units were reported by one hospital. Zero units accounted for approximately 0.5% of stays, while missing units accounted for less than 1% of stays and were primarily due to a couple of problematic submissions.

One hospital reported extremely high units for all its observation patients, accounting for 92% of the high unit reporting. Figure 19 demonstrates the affect that the hospital with high Service Units has on the statewide average Service Units. Instead of an average of 21 hours per stay (excluding the outlier hospital), the statewide average service units are 178 hours including the outlier, and the maximum Service Unit increases significantly to over 8,800 hours. The hospital with extremely high Service Units has since submited corrected data.

Another issue discovered at four hospitals was the reporting of one hour or the same Service Unit value (1 unit) for almost every record, similar to a default value. However, this issue is being resolved over the course of this analysis by communicating with affected hospitals. These types of re-

Fig. 20

Charges Including Outliers



Source: DHCFP observation data for 1998, quarters 1 and 2.

porting issues would not be immediately obvious without a more in-depth review. Although some of these reporting issues affect a subset of hospitals and/or a smaller number of discharges relative to the whole database, they are still significant to note as they would affect further analysis such as charges per service unit or hour. These types of problems could be format-related problems or programming problems at the selected hospitals.

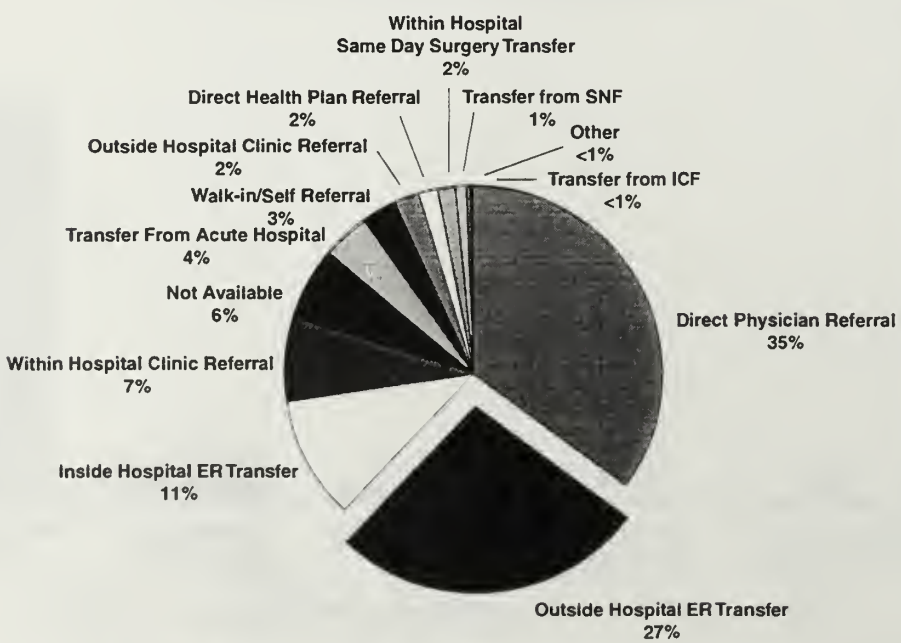
Observation Charges

As was noted previously, the average charge for an observation stay was approximately $3,200 with a median charge of approximately $2,400. Average charges per hospital ranged from a low of $700 to a high of $7,000. In addition, only 5% of patient stays reported charges of approximately $500 or less, while 95% of patient stays reported charges of approximately $9,000 or less (Figure 20, page 25).

However, there are pockets of possible problem reporting areas with the charges, including the reporting of zero charges, low charges, and high charges among some hospitals (Figure 20, page 25). Zero charges were reported for less than 0.5% of all stays. Charges between $1 and $100 inclusive accounted for an additional 0.5% of all records. There were only 200 cases (less than 0.5% of stays) with reported charges of $20,000 or higher. The highest two reported charges per stay were $101,637 and $58,480 respectively. Although some of these reporting issues affect a subset of hospitals and/or a smaller number of discharges relative to the whole database, they are still significant to note as they would affect further analysis such as

Fig. 21

Observation Source



Source: DHCFP observation data for 1998, quarters 1 and 2.
Note: Percentages do not total 100% because of rounding.

charges per service unit or hour. Missing charges were reported for approximately 500 stays and were primarily due to a couple of problematic submissions.

Observation Source

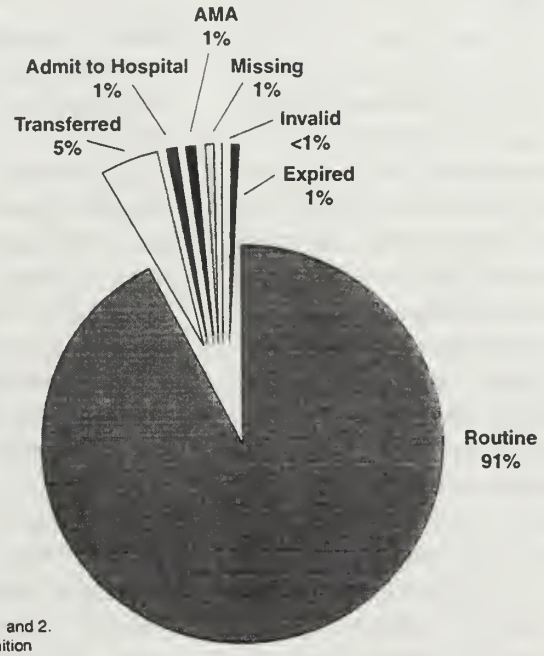
There are 16 different reporting options for Observation Source. The Observation Source reported should be the referring or transferring facility or primary referral source causing the patient to enter observation care. Although there are a variety of reporting choices for Observation Source, the majority of hospitals reported the Observation Source as Outside Hospital ER Transfer and/or Direct Physician Referral for most cases (Figure 21, opposite).

Many hospitals used Outside Hospital ER Transfer for the observation referring source for almost all Outpatient Observation stays. While this could be likely reporting for some hospitals, one would expect most hospitals to have patients referred from that hospital's emergency room. Futhermore, these same hospitals reported no observation stays as transferred from their emergency room (Inside Hospital ER Transfer). Likewise, other hospitals reported all or nearly all of their observation stays as Direct Physician Referral. These instances may be areas of over-reporting or lack of familiarity with the various Observation Source codes used for reporting.

Of particular note for data quality improvement, many hospitals reported Outside Hospital ER Transfer for a large number of cases. One fourth of the hospitals reported between 65% and 99% of cases as Outside Hospital ER Transfer while half of the hospitals reported 30% or more of their outpatient

Fig. 22

Patient Departure Status



Source: DHCFP observation data for 1998, quarters 1 and 2.
Note: "Admit to Hospital" for observation data by definition should not refer to acute inpatient admissions, but to other types of admissions (e.g., admission to a SNF).
Percentages do not total 100% because of rounding.

observation stays in this category. Furthermore, almost all of these hospitals had no data reported for Inside Hospital ER Transfer.

The magnitude of reporting for this category is unusual and noteworthy. It indicates that there may be confusion among hospitals regarding appropriate reporting codes for Observation Source, especially as the reporting options vary slightly from the inpatient case mix reporting options. Currently, there is only one ER code for Admission Source on the inpatient case mix data, whereas the outpatient observation has two ER code options, one for Outside Hospital ER Transfer and one for ER Transfer from Within the Hospital. This confusion among many hospitals most likely contributes to the relatively high (overstated) statewide figure of 27% for Outside Hospital ER Transfer and the corresponding relatively low (understated) statewide figure of 11% for Inside Hospital ER Transfer.

Another significant finding was the high level of reporting for Direct Physician Referral. Several hospitals reported nearly 100% of stays as Direct Physician Referral and a handful reported 90% or more of their stays as Direct Physician Referral. Since many hospitals provide select types of services, higher reporting of physician referral may be more common and relevant depending on the service needed. For instance, one might expect direct physician referrals to hospitals that offer OB/GYN services for procedures such as fetal monitoring. However, in other hospitals, this may be an indication of over-reporting or default reporting.

In addition, several hospitals reported 100% of their cases with an Observation Source of Information Not Available. These hospitals may be inadvertently using this category as a default, instead of using the more specific codes available for Observation Source. These hospitals may be contributing to a slightly inflated number of cases statewide reported as Information Not Available. Thus, the actual number of observation sources unavailable may be somewhat lower than the current statewide figure of 6% indicates.

To provide further clarification and to help resolve the issue of default reporting, the Division is sending out individual hospital awareness sheets or data sheets containing areas for potential improvement. We believe that each hospital will benefit by seeing what has been reported for each Observation Source code for that hospital's data since these reporting issues are not applicable to all hospitals. Hospitals that could have potential reporting problems with Observation Source will be able to see specifically where the reporting problems lie and can begin to address them.

Also of note, there was low reporting for Walk-in, Direct Health Plan Referral, and Transfer from Acute Care Hospital, and minimal reporting of Outside Hospital Clinic Referral, Transfer from Another Institution's Same Day Surgery, Extramural Birth, Transfer from Intermediate Care Facility (ICF), and Transfer from Skilled Nursing Facility (SNF).

Patient Departure Status

There are five available choices for reporting departure status observation data. Though one would expect the majority of stays to be reported as Routine (discharged home), some hospitals reported 100% of their Outpatient Observation Stays as Routine Departure, while other hospitals reported little or no Routine Departures. Additionally, some hospitals had a larger than average number of reported transferred stays. In some cases, transferred patients may accurately reflect the need for follow-up services offered elsewhere.

While the overwhelming majority of cases statewide (91%) are discharged as Routine or To Home (Figure 22, page 27) as noted earlier, there are potential hospital-specific data quality issues with Departure Status reporting. For instance, ten hospitals had

100% of their stays reported as Routine which may indicate use of this category as a default option. Sixteen other hospitals used Routine for 97% or more of their patient stays, indicating very little usage of the other four reporting options. Conversely, eight hospitals had 80% or less of their patient stays reported as Routine. Of these eight, one hospital had no reporting of Routine, a second hospital reported only 3%, and two others reported only 41% and 45% of their patient stays as Routine.

There were also some potential data quality issues with some of the other Departure Status reporting options. For example, twelve hospitals had 10% or more of their stays reported as Transferred. Out of these ten, one hospital had 80% of stays reported as Transferred, while two other hospitals had 23% and 19% of their stays reported as Transferred. These figures are noticeably much higher than the statewide figure of 5%. In addition, three hospitals had high reporting for Admit to Hospital with 95%, 19%, and 17% of stays reported. As noted earlier, Admit to Hospital should refer to patients discharged from observation care and then admitted to another area of the hospital which is not considered acute inpatient, such as a SNF. Patients admitted to an acute hospital are generally reported in the inpatient case mix data not in the observation data. It is possible that there may be some misinterpretation among some hospitals as to the meaning of the Admit to Hospital departure status category in the observation data. These data quality issues may reflect the hospitals' lack of familiarity with the new reporting options for observation Departure Status, and thus may be a result of confusion as to proper code selection.

As with some of the other areas, some Departure Status cases were reported as either missing or invalid. As noted above, the small amount of reporting of missing values was mainly an issue for a couple of problematic data submissions. As for invalid codes, originally reporting of "0" was the main reason for invalid Patient Departure Status codes. However, this particular reporting problem has since been resolved during the course of this analysis. Now invalid reporting for departure status is negligible.

Highlights for Data Improvement Summary

As a result of this midyear observation data review, the Division provided feedback to each of the 80 hospitals on five potential problem reporting areas: Race, Sevice Units, Observation Charges, Observation Source and Patient Departure Status. Each hospital received a data sheet with the five areas of potential improvement displaying that hospital's totals. Hospital percents for these specific data elements were shown along with references to the statewide averages and percents to give hospitals a sense of their own data as compared to the industry as a whole. The Division hopes that by providing feedback to hospitals on potential problem reporting areas, each hospital will be more cognizant of their own process for reporting in these areas making necessary adjustments.

While there are some areas highlighted for data improvement as noted above, throughout this first year of reporting, the observation data has continued to improve as hospitals became more familiar with observation data reporting requirements and have worked out technical and other data issues. Working closely and cooperatively with the Division, nearly 100% of all hospitals are now reporting observation data to the Division. It is from this newly reported data source that this preliminary information on the industry has been gleaned for this first look at observation stays in Massachusetts.

Conclusion

Hospital Observation Stays in Massachusetts is a preliminary analysis of newly collected outpatient observation data from the Division of Health Care Finance and Policy. Hospitals began reporting outpatient observation data in July 1997. Since then, approximately 80 hospitals have filed observation data and are included in this midyear review. The Division's objective was to assess the data content, provide a baseline or informational overview to hospitals and other interested parties, and to provide feedback to hospitals on areas for data improvement.

Hospitals place patients in the observation setting to evaluate their condition and to provide treatment while determining the need for admission to the hospital. Some patients, such as those who have had a cardiac catheterization procedure, are placed in observation post ambulatory surgery because they require extended recovery periods. Other patients, such as those experiencing dehydration or an acute asthmatic attack, require urgent treatment while being monitored and assessed to determine when and if they can be safely discharged.

Observation stays account for almost 20% of the volume of discharges in the Inpatient Case Mix Database. Furthermore, one would anticipate that the growth in the number of stays in the observation setting (or perhaps some modified-type of observation setting in the future) would continue given the ongoing advances in technology and progressive medical and surgical treatments. The emphasis on managed care, as well as the increase in the types of home services offered, have also contributed to more patients receiving care in the outpatient observation setting. Today, more patients can be evaluated and treated in an outpatient observation setting rather than an inpatient setting.

Highlights from the observation analysis reveal that the most common conditions reported statewide for outpatient observation stays are cardiac-related, followed by maternity-related conditions and respiratory conditions. When looking at hospital-specific data the most common conditions for outpatient observation stays vary due to the type of specialized services provided by each hospital (the top primary diagnoses statewide are listed below).

Top Primary Diagnoses

- Chest Pain
- Volume Depletion
- Antepartum Conditions (threatened labor)
- Asthma
- Syncope (fainting)
- Gallstones and Ureteric Stones
- Coronary Atherosclerosis
- Pneumonia
- Atrial Fibrillation
- Congestive Heart Failure
- Anemia
- Abdominal Pain
- Hypertrophy of Tonsil with Adenoids
- Acute Bronchiolitis
- Croup

Some of the top procedures statewide include: fetal monitoring, laparoscopic cholecystectomy, tonsillectomy with adenoidectomy, cardiac catheterization, and other consultation. The types of procedures range from diagnostic or evaluative services to treatment and may include postsurgical recovery services.

The majority of outpatient observation patients seen in the observation setting were female and the vast majority of all stays were of white race. The average age for all stays was approximately 44 years. The higher statewide percent for females corresponds with the gender specificity of some of the top observation diagnoses such as antepartum-related conditions. It also is consistent with the gender ratios seen in the inpatient case mix data. Although the statewide average age is 44 years old, the average age by hospital varies from age 8 to age 64. This most likely is a result of the differences in the type of services provided by the hospital, the range and extent of the hospital's market area, the geographic location of the hospital, and the type of specialists providing care at and referring patients to the hospital.

The average patient stayed about 21 hours with median charges of approximately $2,400. The average hours when looking at individual hospitals were consistently in the 20 to 30 hour range for the majority of hospitals. Most hospitals had average charges that ranged from $2,000 to $4,000 per stay. The ranges for average length of stay and average charges reflect the varying types of diagnoses seen at the hospital, the complexity of the treatment involved, the illness severity of the patient, and the age of the patient.

The vast majority of hospitals reported observation stay patients as Routine departures (discharged to home) followed by a much smaller percentage reported as Transferred. The transferred observation stay patients include patients that are transferred to another facility for further diagnostic procedures or follow-up care not available at the transferring hospital.

Most observation stay patients were reported with an Originating Observation Source of Direct Physician Referral or Transferred From Another Hospital's Emergency Room. While one would expect most hospitals to have more patients referred from its own emergency room, many hospitals reported a higher than expected number of patients as Outside Hospital ER Transfer. This over-reporting of Outside Hospital ER Transfer may indicate that hospitals are not as familiar with the various observation source codes available for reporting. Hospitals received feedback on this area and others through hospital-specific data sheets highlighting potential areas of data improvement.

Reporting problems were noted for five of the data elements. The five data elements include: Patient Race, Service Units (Hours), Observation Charges, Observation Source, and Patient Departure Status. All hospitals received feedback on the five reporting problem areas noted above through hospital-specific data sheets. Since the reporting problems noted did not affect all hospitals uniformly, the Division believes that each hospital will benefit most by seeing what it has reported for these areas of potential improvement next to statewide figures that may be used as a general reference. The Division believes that providing hospital-specific feedback will help each hospital to be more cognizant of its reporting and allow them to make adjustments where necessary.

Specifically, for several of these data elements at a select number of hospitals, only one code was reported for a majority of stays. In some cases, 100% of the stays were reported with one code almost as if the code was being used as a default. Some examples from the areas affected include: over-reporting Unknown for Race, reporting the same unit (1) for Service Units, over-reporting Outside Hospital ER Transfer for Observa-

tion Source and reporting 100% of stays as Routine Departure, or in some cases, no Routine Departure reporting. Other problems encountered include limited reporting of unusually high or low service units and charges. Since the analysis for this midyear review included data reported to the Division as of December 21, 1998, hospital data that have since been corrected are not reflected in this analysis.

Observation stay data reported to the Division encompassed approximately 74,000 patient stays for the six months under study and accounted for nearly $240 million in health care charges. Using the first half of the year as a benchmark, this amounts to an estimated 150,000 total observation stays for the year and an estimated half a billion dollars of care. If the trend toward observation stays continues to accelerate, observation stays will account for an ever-increasing proportion of health care dollars for Massachusetts' payers, hospitals, and patients. Thus, health care delivery in the observation setting will become an increasingly significant part of the health care experience.

This preliminary analysis, *Hospital Observation Stays in Massachusetts*, provides caregivers, policy makers and others with an overview of observation stays in Massachusetts and is intended to assist hospitals with improved data reporting by highlighting potential areas of data improvement. The growth in the outpatient observation service area, as well as the differing definitions on specific aspects of observation stay criteria have heightened the interest in this service area. The Massachusetts Division of Health Care Finance and Policy hopes that this initial data review of the statewide Outpatient Observation Database is informative and beneficial to all who use it.

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Table 1. Outpatient Observation Stays by Hospital

Hospital Name	Total Stays
Massachusetts General Hospital	3,282
Brigham and Women's Hospital	3,242
Massachusetts Eye and Ear Infirmary	2,882
Boston Medical Center-BCH	2,698
South Shore Hospital	2,551
Baystate Health Systems	2,170
North Shore Medical Center-Salem Hospital	2,013
Lawrence General Hospital	1,989
UMASS/Memorial Health Care	1,917
Columbia MetroWest – Framingham Union Campus	1,682
University of Massachusetts Medical Center	1,651
Southcoast Health Systems-St. Luke's (New Bedford)	1,643
Beth Israel Deaconess Medical Center	1,605
Health Alliance Hospital, Inc.	1,585
Northeast Health Systems-Beverly	1,574
St. Elizabeth's Medical Center	1,573
Lowell General Hospital	1,535
Southcoast Health Systems – Charlton Memorial	1,514
Newton-Wellesley Hospital	1,450
Saints Memorial Medical Center	1,280
New England Baptist Hospital	1,279
Winchester Hospital and Family Medical Center	1,275
New England Medical Center	1,223
Children's Medical Center	1,153
Brockton Hospital	1,099
Carney Hospital	1,010
Mercy Hospital	971
Boston Medical Center – University	933
Berkshire Health Systems, Inc.-Berkshire Medical Ctr Campus	896
Morton Hospital and Medical Center	893
Caritas Norwood	876
St. Anne's Hospital	875
Cape Cod Health Systems – Falmouth	855
Emerson Hospital	839
Good Samaritan Medical Center	812
Cooley Dickinson Hospital	792
Harrington Memorial Hospital	776
Holy Family Hospital	776
Boston Regional Medical Center	772
Franklin Medical Center	757

Table 1. Outpatient Observation Stays by Hospital (continued)

Hospital Name	Total Stays
Hallmark Health Care – Melrose Wakefield	728
Heywood Hospital	728
Deaconess-Waltham Hospital	704
Holyoke Hospital	691
Quincy Hospital	683
Jordan Hospital	658
Columbia MetroWest – Leonard Morse Campus	619
Mount Auburn Hospital	613
North Adams Regional Hospital	574
Anna Jaques Hospital	572
Cape Cod Health Systems – Cape Cod Hospital	560
St. Vincent's Hospital	546
Hallmark Health Care-Malden Hospital	515
Milford-Whitinsville Regional Hospital	506
Sturdy Memorial Hospital	486
UMASS Health System – Marlborough	461
Mary Lane Hospital	441
Hubbard Regional Hospital	403
Deaconess-Nashoba Hospital	362
Milton Hospital	341
Northeast Health System-Addison Gilbert	338
Caritas Southwood	336
Cambridge Hospital – Cambridge Campus	297
Faulkner Hospital	291
Haverhill Municipal Hospital	262
Athol Memorial Hospital	261
Noble Hospital	249
Wing Memorial Hospital and Medical Center	223
Hallmark Health Care – Lawrence Memorial	203
Cambridge Hospital – Somerville Campus	191
Clinton Hospital	182
Fairview Hospital	170
Deaconess-Glover Memorial Hospital	150
Berkshire Health Systems – Hillcrest Campus	141
Medical Center at Symmes	110
Southcoast Health Systems – Tobey Hospital	105
Hallmark Health Care-Whidden	102
AtlantiCare Medical Center	88
Nantucket Cottage Hospital	51
Dana Farber Cancer Institute	23
Total Outpatient Observation Stays	**73,662**

Table 2. Average Age by Hospital

Hospital Name	Average Age
Medical Center at Symmes	64
Noble Hospital	62
Clinton Hospital	61
Hallmark Health Care-Whidden	61
Mount Auburn Hospital	60
UMass Health System-Marlborough	60
Columbia MetroWest-Leonard Morse Campus	59
Deaconess-Nashoba Hospital	59
Milton Hospital	58
Hubbard Regional Hospital	58
Fairview Hospital	57
Northeast Health Systems-Addison Gilbert	57
AtlantiCare Medical Center	57
Wing Memorial Hospital and Medical Center	57
Deaconess-Glover Memorial Hospital	57
Berkshire Heallth Systems-Hillcrest Campus	57
Cambridge Hospital-Somerville Campus	54
Faulkner Hospital	54
Hallmark Health Care-Lawrence Memorial	53
New England Baptist Hospital	52
Cape Cod Health Systems-Cape Cod Hospital	52
Sturdy Memorial Hospital	52
Milford-Whitinsville Regional Hospital	52
Athol Memorial Hospital	51
Boston Medical Center-University	51
Hallmark Health Care-Melrose Wakefield	51
UMass/Memorial Health Care	51
Caritas Southwood	51
Holyoke Hospital	50
Hallmark Health Care-Malden Hospital	50
Caritas Norwood	50
Brigham and Women's Hospital	50
Winchester Hospital and Family Medical Center	49
Franklin Medical Center	48
Beth Israel Deaconess Medical Center	48
Cooley Dickinson Hospital	48
Mary Lane Hospital	48
Health Alliance Hospital, Inc.	48
Massachusetts General Hospital	48
Jordan Hospital	48

Table 2. Average Age by Hospital (continued)

Hospital Name	Average Age
Haverhill Municipal Hospital	47
Dana Farber Cancer Institute	47
Morton Hospital and Medical Center	46
Southcoast Health Systems-St. Luke's (New Bedford)	45
Columbia MetroWest-Framingham Union Campus	45
Northeast Health Systems-Beverly	45
Cambridge Hospital-Cambridge Campus	45
South Shore Hospital	44
Nantucket Cottage Hospital	44
Cape Cod Health Systems-Falmouth	44
Good Samaritan Medical Center	43
Southcoast Health Systems-Charlton Memorial	43
Massachusetts Eye and Ear Infirmary	42
Southcoast Health Systems-Tobey Hospital	42
Harrington Memorial Hospital	42
Boston Regional Medical Center	42
St. Elizabeth's Medical Center	42
Mercy Hospital	42
Holy Family Hospital	41
Carney Hospital	41
Berkshire Health Systems, Inc.-Berkshire Medical Center Campus	41
Saints Memorial Medical Center	41
North Adams Regional Hospital	41
Quincy Hospital	40
University of Massachusetts Medical Center	39
Emerson Hospital	39
Heywood Hospital	38
Brockton Hospital	38
Lowell General Hospital	37
Baystate Health Systems	37
Newton-Wellesley Hospital	37
Boston Medical Center-BCH	37
Lawrence General Hospital	36
New England Medical Center	36
Deaconess-Waltham Hospital	36
North Shore Medical Center-Salem Hospital	35
Anna Jaques Hospital	33
St. Vincent's Hospital	29
St. Anne's Hospital	28
Children's Medical Center	8

Table 3. Comparison of Observation Stays to Inpatient Discharges Ranked by Percent

Hospital Name	Total Stays	Total Disch.	Ratio of Obs. to Inpatient
Massachusetts Eye and Ear Infirmary	2,882	815	353.62%
Mary Lane Hospital	441	752	58.64%
Hubbard Regional Hospital	403	807	49.94%
New England Baptist Hospital	1,279	2,692	47.51%
Boston Medical Center-BCH	2,698	5,837	46.22%
Lawrence General Hospital	1,989	5,273	37.72%
St. Anne's Hospital	875	2,406	36.37%
Athol Memorial Hospital	261	720	36.25%
Deaconess-Nashoba Hospital	362	1,000	36.20%
Harrington Memorial Hospital	776	2,195	35.35%
Cape Cod Health Systems-Falmouth	855	2,546	33.58%
Health Alliance Hospital, Inc.	1,585	4,731	33.50%
Saints Memorial Medical Center	1,280	3,881	32.98%
Heywood Hospital	728	2,316	31.43%
North Shore Medical Center-Salem Hospital	2,013	6,851	29.38%
Northeast Health Systems-Addison Gilbert	338	1,151	29.37%
Franklin Medical Center	757	2,667	28.38%
Columbia MetroWest-Framingham Union Campus	1,682	5,984	28.11%
South Shore Hospital	2,551	9,178	27.79%
UMASS Health System-Marlborough	461	1,708	26.99%
Morton Hospital and Medical Center	893	3,396	26.30%
Clinton Hospital	182	714	25.49%
Lowell General Hospital	1,535	6,056	25.35%
Carney Hospital	1,010	4,006	25.21%
Winchester Hospital and Family Medical Center	1,275	5,219	24.43%
Wing Memorial Hospital and Medical Center	223	959	23.25%
North Adams Regional Hospital	574	2,473	23.21%
Columbia MetroWest-Leonard Morse Campus	619	2,723	22.73%
Boston Medical Center-University	933	4,140	22.54%
Hallmark Health Care-Malden Hospital	515	2,330	22.10%
Fairview Hospital	170	778	21.85%
Cooley Dickinson Hospital	792	3,659	21.65%
Boston Regional Medical Center	772	3,651	21.14%
Northeast Health Systems-Beverly	1,574	7,514	20.95%
Nantucket Cottage Hospital	51	245	20.82%
St. Elizabeth's Medical Center	1,573	7,814	20.13%
Deaconess-Waltham Hospital	704	3,555	19.80%
Southcoast Health Systems-Charlton Memorial	1,514	7,786	19.45%
Haverhill Municipal Hospital	262	1,363	19.22%
Emerson Hospital	839	4,368	19.21%
Brockton Hospital	1,099	5,816	18.90%

Table 3. Comparison of Observation Stays to Inpatient Discharges Ranked by Percent (continued)

Hospital Name	Total Stays	Total Disch.	Ratio of Obs. to Inpatient
Mercy Hospital	971	5,143	18.88%
University of Massachusetts Medical Center	1,651	8,775	18.81%
Newton-Wellesley Hospital	1,450	7,830	18.52%
UMASS/Memorial Health Care	1,917	10,398	18.44%
Caritas Norwood	876	4,786	18.30%
Southcoast Health Systems-St. Luke's (New Bedford)	1,643	9,017	18.22%
Massachusetts General Hospital	3,282	18,873	17.39%
Milford-Whitinsville Regional Hospital	506	3,042	16.63%
Berkshire Health Systems, Inc.-Berkshire Medical Ctr. Campus	896	5,419	16.53%
Noble Hospital	249	1,506	16.53%
Milton Hospital	341	2,098	16.25%
Jordan Hospital	658	4,057	16.22%
Holyoke Hospital	691	4,322	15.99%
Sturdy Memorial Hospital	486	3,094	15.71%
Anna Jaques Hospital	572	3,726	15.35%
New England Medical Center	1,223	7,991	15.30%
Holy Family Hospital	776	5,076	15.29%
Brigham and Women's Hospital	3,242	21,756	14.90%
Quincy Hospital	683	4,609	14.82%
Hallmark Health Care-Melrose Wakefield	728	5,087	14.31%
Caritas Southwood	336	2,383	14.10%
Children's Medical Center	1,153	8,397	13.73%
Deaconess-Glover Memorial Hospital	150	1,138	13.18%
Baystate Health Systems	2,170	16,491	13.16%
Good Samaritan Medical Center	812	6,768	12.00%
Berkshire Health Systems-Hillcrest Campus	141	1,204	11.71%
Cambridge Hospital-Cambridge Campus	297	2,577	11.53%
Mount Auburn Hospital	613	5,637	10.87%
Medical Center at Symmes	110	1,114	9.87%
Faulkner Hospital	291	3,161	9.21%
Cambridge Hospital-Somerville Campus	191	2,118	9.02%
Cape Cod Health Systems-Cape Cod Hospital	560	6,839	8.19%
Beth Israel Deaconess Medical Center	1,605	19,631	8.18%
Hallmark Health Care-Lawrence Memorial	203	2,736	7.42%
Southcoast Health Systems-Tobey Hospital	105	1,673	6.28%
Dana Farber Cancer Institute	23	426	5.40%
St. Vincent's Hospital	546	10,296	5.30%
Hallmark Health Care-Whidden	102	2,148	4.75%
AtlantiCare Medical Center	88	3,425	2.57%
Totals	**73,662**	**376,842**	

Sources: Outpatient observation data and case mix data, first two quarters of 1998

Table 4. Outpatient Observation Stays Average Hours by Hospital Ranked by Hours

Hospital Name	Average Length of Stay (Hours)	Total Stays
UMASS/Memorial Health Care	*6,020.2	1,917
Southcoast Health Systems-St. Luke's (New Bedford)	34.9	1,643
Athol Memorial Hospital	34.7	261
Noble Hospital	32.4	249
Morton Hospital and Medical Center	28.6	893
Boston Medical Center-University	28.1	933
Dana Farber Cancer Institute	27.9	23
AtlantiCare Medical Center	27.7	88
Milford-Whitinsville Regional Hospital	27.6	506
Caritas Norwood	26.7	876
Good Samaritan Medical Center	26.4	812
Cooley Dickinson Hospital	26.3	792
Wing Memorial Hospital and Medical Center	25.8	223
Southcoast Health Systems-Tobey Hospital	25.7	105
Baystate Health Systems	25.6	2,170
Holyoke Hospital	25.3	691
Milton Hospital	25.2	341
Jordan Hospital	24.9	658
Faulkner Hospital	24.8	291
Health Alliance Hospital, Inc.	24.8	1,585
Brockton Hospital	24.8	1,099
Mary Lane Hospital	24.7	441
Clinton Hospital	24.3	182
Deaconess-Nashoba Hospital	24.0	362
Sturdy Memorial Hospital	23.9	486
Lowell General Hospital	23.9	1,535
Haverhill Municipal Hospital	23.6	262
Children's Medical Center	23.6	1,153
Emerson Hospital	23.5	839
Southcoast Health Systems-Charlton Memorial	23.4	1,514
Northeast Health Systems-Beverly	23.3	1,574
Columbia MetroWest-Leonard Morse Campus	23.1	619
Hubbard Regional Hospital	23.0	403
Cape Cod Health Systems-Falmouth	22.8	855
Caritas Southwood	22.7	336
Berkshire Health Systems-Hillcrest Campus	22.7	141
Hallmark Health Care-Whidden	22.2	102
University of Massachusetts Medical Center	22.2	1,651
Brigham and Women's Hospital	22.1	3,242
Massachusetts General Hospital	22.0	3,282

Table 4. Outpatient Observation Stays Average Hours by Hospital Ranked by Hours (continued)

Hospital Name	Average Length of Stay (Hours)	Total Stays
UMASS Health System-Marlborough	21.8	461
Boston Regional Medical Center	21.6	772
Boston Medical Center-BCH	21.6	2,698
Franklin Medical Center	21.5	757
Hallmark Health Care-Melrose Wakefield	21.5	728
Medical Center at Symmes	21.4	110
North Shore Medical Center-Salem Hospital	21.4	2,013
New England Medical Center	21.3	1,223
Northeast Health Systems-Addison Gilbert	21.2	338
Deaconess-Glover Memorial Hospital	21.1	150
Mount Auburn Hospital	20.9	613
Hallmark Health Care-Lawrence Memorial Hospital	20.9	203
Deaconess-Waltham Hospital	20.6	704
Harrington Memorial Hospital	20.4	776
Beth Israel Deaconess Medical Center	20.2	1,605
Carney Hospital	19.8	1,010
Winchester Hospital and Family Medical Center	19.4	1,275
Columbia MetroWest-Framingham Union Campus	19.1	1,682
Saints Memorial Medical Center	18.9	1,280
Berkshire Health Systems, Inc.-Berkshire Medical Center Campus	18.8	896
Cape Cod Health Systems-Cape Cod Hospital	18.4	560
Newton-Wellesley Hospital	18.2	1,450
North Adams Regional Hospital	17.7	574
Mercy Hospital	17.6	971
South Shore Hospital	17.5	2,551
Lawrence General Hospital	16.2	1,989
Massachusetts Eye and Ear Infirmary	16.2	2,882
Quincy Hospital	15.6	683
Nantucket Cottage Hospital	15.5	51
Heywood Hospital	15.4	728
Hallmark Health Care-Malden Hospital	15.3	515
St. Elizabeth's Medical Center	14.0	1,573
Anna Jaques Hospital	13.9	572
New England Baptist Hospital	11.1	1,279
Fairview Hospital	8.4	170
St. Vincent's Hospital	8.4	546
Cambridge Hospital-Cambridge Campus	1.3	297
Cambridge Hospital-Somerville Campus	1.1	191
Holy Family Hospital	1.0	776
St. Anne's Hospital	1.0	875

*Note: UMass/Memorial Health Care and St. Anne's Hospital have submitted corrected service unit data.

Table 5. Outpatient Observation Charges by Hospital Ranked by Total Charges

Hospital Name	Total Charges	Total Stays	Average Charge
Massachusetts General Hospital	$22,949,940	3,282	$6,997
Brigham and Women's Hospital	$18,761,069	3,242	$5,787
Massachusetts Eye and Ear Infirmary	$12,129,627	2,882	$4,209
Beth Israel Deaconess Medical Center	$9,636,535	1,605	$6,004
Boston Medical Center-BCH	$7,858,507	2,698	$2,913
University of Massachusetts Medical Center	$7,525,164	1,651	$4,558
Newton-Wellesley Hospital	$5,932,698	1,450	$4,097
South Shore Hospital	$5,906,260	2,551	$2,315
Baystate Health Systems	$5,819,492	2,170	$2,682
Columbia MetroWest-Framingham Union Campus	$5,809,820	1,682	$3,454
Children's Medical Center	$5,487,475	1,153	$4,759
New England Medical Center	$5,259,210	1,223	$4,300
Lowell General Hospital	$5,111,054	1,535	$3,330
Northeast Health Systems-Beverly	$4,918,840	1,574	$3,133
Lawrence General Hospital	$4,692,057	1,989	$2,359
St. Elizabeth's Medical Center	$4,537,882	1,573	$2,885
North Shore Medical Center-Salem Hospital	$4,400,034	2,013	$2,186
Southcoast Health Systems-St. Luke's (New Bedford)	$4,370,447	1,643	$2,662
Boston Medical Center-University	$4,313,180	933	$4,623
UMASS/Memorial Health Care	$4,072,027	1,917	$2,124
Mercy Hospital	$4,036,370	971	$4,157
Saints Memorial Medical Center	$4,034,163	1,280	$3,152
Morton Hospital and Medical Center	$3,236,133	893	$3,624
Winchester Hospital and Family Medical Center	$3,158,484	1,275	$2,477
Holy Family Hospital	$3,145,851	776	$4,054
Brockton Hospital	$3,075,542	1,099	$2,798
St. Anne's Hospital	$2,925,920	875	$3,344
Berkshire Health Systems, Inc.-Berkshire Medical Ctr. Campus	$2,852,501	896	$3,184
New England Baptist Hospital	$2,706,402	1,279	$2,116
Health Alliance Hospital, Inc.	$2,645,570	1,585	$1,669
Southcoast Health Systems-Charlton Memorial	$2,565,174	1,514	$1,695
Cooley Dickinson Hospital	$2,523,336	792	$3,186
Good Samaritan Medical Center	$2,506,977	812	$3,087
Franklin Medical Center	$2,307,580	757	$3,048
Jordan Hospital	$2,280,341	658	$3,466
Cape Cod Health Systems-Falmouth	$2,280,233	855	$2,667
Holyoke Hospital	$2,116,743	691	$3,063
Quincy Hospital	$2,102,630	683	$3,097
Columbia MetroWest-Leonard Morse Campus	$2,024,556	619	$3,271
Caritas Norwood	$1,904,403	876	$2,174

Table 5. Outpatient Observation Charges by Hospital Ranked by Total Charges (continued)

Hospital Name	Total Charges	Total Stays	Average Charge
Cape Cod Health Systems-Cape Cod Hospital	$1,781,695	560	$3,187
Milford-Whitinsville Regional Hospital	$1,691,904	506	$3,344
Boston Regional Medical Center	$1,615,229	772	$2,092
Sturdy Memorial Hospital	$1,560,567	486	$3,211
Mount Auburn Hospital	$1,436,544	613	$2,343
Hallmark Health Care-Melrose Wakefield	$1,339,644	728	$1,840
Harrington Memorial Hospital	$1,271,213	776	$1,638
Mary Lane Hospital	$1,219,482	441	$2,765
North Adams Regional Hospital	$1,188,199	574	$2,070
Faulkner Hospital	$1,125,294	291	$3,867
Carney Hospital	$1,114,167	1,010	$1,103
UMASS Health Systems-Marlborough	$1,111,129	461	$2,410
Heywood Hospital	$1,081,627	728	$1,486
Haverhill Municipal Hospital	$1,068,604	262	$4,079
Cambridge Hospital-Cambridge Campus	$1,037,826	297	$3,518
Caritas Southwood	$1,026,149	336	$3,054
Northeast Health Systems-Addison Gilbert	$968,774	338	$2,901
Deaconess-Waltham Hospital	$965,240	704	$1,371
Emerson Hospital	$949,887	839	$2,317
Milton Hospital	$902,010	341	$2,645
Hallmark Health Care-Malden Hospital	$814,187	515	$1,581
Anna Jaques Hospital	$781,817	572	$1,367
Hubbard Regional Hospital	$762,382	403	$1,892
Deaconess-Nashoba Hospital	$739,135	362	$2,042
Noble Hospital	$686,374	249	$2,757
Berkshire Health Systems-Hillcrest Campus	$665,154	141	$4,717
Cambridge Hospital-Somerville Campus	$585,520	191	$3,082
Fairview Hospital	$553,455	170	$3,256
AtlantiCare Medical Center	$494,709	88	$5,622
Wing Memorial Hospital and Medical Center	$468,829	223	$2,102
Clinton Hospital	$463,903	182	$2,549
Medical Center at Symmes	$454,711	110	$4,134
Athol Memorial Hospital	$442,351	261	$1,695
Hallmark Health Care-Lawrence Memorial	$439,498	203	$2,165
St. Vincent's Hospital	$374,305	546	$686
Hallmark Health Care-Whidden	$302,131	102	$2,962
Deaconess-Glover Memorial Hospital	$262,788	150	$4,043
Southcoast Health Systems-Tobey Hospital	$235,397	105	$2,242
Dana Farber Cancer Institute	$135,378	23	$5,886
Nantucket Cottage Hospital	$57,672	51	$1,131
Totals	**$238,095,107**	**73,662**	

Note: Deaconess-Glover charges represent one quarter

Table 6. Outpatient Observation Stays by Payer Source

Primary Payer	Payer Source	Count
121	Medicare	14,272
103	Medicaid	7,374
81	HMO Blue	5,108
147	Other Commercial	4,138
7	Tufts Associated Health Plan	3,952
142	Blue Cross Indemnity	3,677
145	Self-Pay	3,595
8	Pilgrim Health Care	2,884
148	Other HMO	2,671
1	Harvard Community Health Plan	2,069
143	Free Care	1,501
4	Fallon Community Health Plan	1,455
224	Medicare HMO-Tufts Secure Horizons	1,362
104	Medicaid Managed Care-Primary Care Clinician (PCC)	1,188
80	Tufts Total Health Plan PPO	1,141
37	HCHP-Pilgrim HMO (integrated product)	1,013
134	Medicare HMO-Other	908
149	PPO and Other Managed Care	868
119	Medicaid Managed Care Other (not listed elsewhere)	850
251	Healthsource CMHC HMO	812
230	Medicare HMO-HCHP First Seniority	697
146	Worker's Compensation	655
48	US Healthcare	502
144	Other Government	435
47	Neighborhood Health Plan	425
24	Health New England, Inc	406
156	Out of state BCBS	401
3	Network Blue (PPO)	349
154	BCBS Other	332
9	United Health Plan of New England (Ocean State)	288
51	Aetna Life Insurance	258
111	Medicaid Managed Care-HMO Blue	246
155	Blue Cross Managed Care Other	244
57	John Hancock Life Insurance	243
160	Blue Choice (includes Healthflex Blue)-POS	240
11	Blue Care Elect	239
84	Private Healthcare Systems PPO	230
118	Medicaid Mental Health & Substance Abuse Plan-Mass Behavioral Health Partnership	206
40	Kaiser Foundation	193
44	Community Health Plan	182
151	CHAMPUS	173

Table 6. Outpatient Observation Stays by Payer Source (continued)

Primary Payer	Payer Source	Count
250	CIGNA HMO	172
13	Community Health Plan Options (New York)	169
150	Other Non-Managed Care	163
115	Medicaid Managed Care-Pilgrim Health Care	150
2	Bay State-a product of HMO Blue	143
10	Pilgrim Advantage-PPO	130
120	Out-of-State Medicaid	124
125	Medicare HMO-Fallon Senior Plan	108
87	CIGNA PPO	107
220	Medicare HMO-Blue Care 65	101
113	Medicaid Managed Care-Neighborhood Health Plan	100
116	Medicaid Managed Care-Tufts Associated Health Plan	99
82	John Hancock Preferred	78
157	Metrahealth-PPO (United Health Care of NE)	77
55	Guardian Life Insurance	73
45	Health Source New Hampshire	67
21	Commonwealth PPO	63
20	HCHP of New England (formerly RIGHA)	55
6	Central Mass Health Care	54
172	Metrahealth-POS (United Health Care of NE)	49
270	UniCare Preferred Plus PPO	49
231	Medicare HMO-Pilgrim Prime	48
99	Other POS	47
30	CIGNA (Indemnity)	45
109	Medicaid Managed Care-Harvard Community Health Plan	42
97	UniCare	42
36	United Healthcare Insurance Company-PPO	41
74	United Healthcare Insurance Company	36
79	Pioneer Health Care PPO	35
19	Matthew Thornton	33
66	Prudential Insurance	32
18	Prudential Healthcare PPO	30
158	Metrahealth-HMO (United Health Care of NE)	29
171	CIGNA POS	27
67	First Allmerica Financial Life Insurance	27
98	Healthy Start	24
22	Aetna Open Choice PPO	23
64	New York Life Care Indemnity (New York Life Insurance)	23
96	Metrahealth (United Health Care of NE)	21
35	United Healthcare Insurance Company-HMO	19
89	Great West/NE Care	17
43	MEDTAC	16

Table 6. Outpatient Observation Stays by Payer Source (continued)

Primary Payer	Payer Source	Count
232	Medicare HMO-Seniorcare Direct	15
5	Ocean State Physician Plan	14
62	Mutual of Omaha Insurance	13
161	Aetna Managed Choice POS	11
49	Healthsource CMHC Plus PPO	11
182	UniCare Preferred Plus Managed Access EPO	10
17	Prudential Healthcare POS	8
225	Medicare HMO-US Healthcare	8
31	One Health Plan HMO (Great West Life)	7
23	Guardian Life Insurance Company PPO	7
94	Time Insurance Co	7
91	New England Benefits	6
108	Medicaid Managed Care-Fallon Community Health Plan	6
73	United Health and Life (subsidiary of United Health Plans of NE)	6
184	Private Healthcare Systems EPO	6
112	Medicaid Managed Care-Kaiser Foundation Plan	5
72	Healthsource New Hampshire	5
92	Private Health Care System	5
166	Private Healthcare Systems POS	5
88	Freedom Care	4
29	CIGNA Health Plan	4
52	Boston Mutual Insurance	4
70	Union Labor Life Insurance	4
153	Grant	4
42	ConnectiCare Of Massachusetts	3
95	Pilgrim Select-PPO	3
85	Liberty Mutual	3
63	New England Mutual Insurance	3
71	ADMAR	3
28	Great West Life PPO	3
33	Mutual of Omaha PPO	2
107	Medicaid Managed Care-Community Health Plan	2
53	Connecticut General Insurance	2
77	Options for Healthcare PPO	2
167	Fallon POS	2
106	Medicaid Managed Care-Central Mass Health Care	1
126	Medicare HMO-Harvard Community Health Senior Care	1
131	Medicare HMO-Pilgrim Enhance 65	1
25	Pioneer Plan	1
76	Mass Mutual	1
90	Healthsource Preferred (self-funded)	1
234	Medicare HMO-Managed Blue for Seniors	1

Appendix A

Hospitals Included in the Outpatient Observation Analysis

Anna Jaques Hospital
Athol Memorial Hospital
AtlantiCare Medical Center
Baystate Health Systems
Berkshire Health Systems – Hillcrest Campus
Berkshire Health Systems, Inc. – Berkshire Medical Ctr Campus
Beth Israel Deaconess Medical Center
Boston Medical Center – BCH
Boston Medical Center – University
Boston Regional Medical Center
Brigham and Women's Hospital
Brockton Hospital
Cambridge Hospital – Cambridge Campus
Cambridge Hospital – Somerville Campus
Cape Cod Health Systems – Cape Cod Hospital
Cape Cod Health Systems – Falmouth
Caritas Norwood
Caritas Southwood
Carney Hospital
Children's Medical Center
Clinton Hospital
Columbia MetroWest – Framingham Union Campus
Columbia MetroWest – Leonard Morse Campus
Cooley Dickinson Hospital
Dana Farber Cancer Institute
Deaconess–Glover Memorial Hospital
Deaconess–Nashoba Hospital
Deaconess–Waltham Hospital
Emerson Hospital
Fairview Hospital

(continued on next page)

Faulkner Hospital
Franklin Medical Center
Good Samaritan Medical Center
Hallmark Health Care – Lawrence Memorial
Hallmark Health Care – Malden Hospital
Hallmark Health Care – Melrose Wakefield
Hallmark Health Care – Whidden
Harrington Memorial Hospital
Haverhill Municipal Hospital
Health Alliance Hospital, Inc.
Heywood Hospital
Holy Family
Holyoke Hospital
Hubbard Regional Hospital
Jordan Hospital
Lawrence General Hospital
Lowell General Hospital
Mary Lane Hospital
Massachusetts Eye and Ear Infirmary
Massachusetts General Hospital
Medical Center at Symmes
Mercy Hospital
Milford–Whitinsville Regional Hospital
Milton Hospital
Morton Hospital and Medical Center
Mount Auburn Hospital
Nantucket Cottage Hospital
New England Baptist Hospital
New England Medical Center
Newton–Wellesley Hospital
Noble Hospital
North Adams Regional Hospital
North Shore Medical Center – Salem Hospital
Northeast Health System – Addison Gilbert
Northeast Health Systems – Beverly
Quincy Hospital
Saints Memorial Medical Center
South Shore Hospital
Southcoast Health Systems – Charlton Memorial
Southcoast Health Systems – Tobey Hospital
Southcoast Health Systems –St. Luke's (New Bedford)
St. Anne's Hospital
St. Elizabeth's Medical Center
St. Vincent's Hospital
Sturdy Memorial Hospital
UMASS Health System/Marlborough Hospital
UMASS/Memorial Health Care
University of Massachusetts Medical Center
Winchester Hospital and Family Medical Center
Wing Memorial Hospital and Medical Center

Appendix B

Hospitals Not Included in the Outpatient Observation Analysis

Quarter 1

Lahey
Martha's Vineyard
Providence Hospital
Vencor – Boston*
Vencor – Northshore*

Quarter 2

Lahey
Martha's Vineyard
Providence Hospital
Vencor – Boston*
Vencor – Northshore*

* These hospitals submit inpatient case mix data, but do not have outpatient observation patients.

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